NOVEMBER, 1941

Industrial FINISHING

Published Monthly in the Interest of Product Cleaning and Painting by Practical Publications, Inc., 1142 N. Meridian Street, Indianapolis 4, Ind.

Since 1864 . . . Thanksgiving Day, a part of the American tradition since Pilgrim times, was proclaimed a national holiday in 1864 by President Lincoln . . . and has since remained one of our great national observances.

Since 1865 . . . Not quite one year later the Lilly Varnish Company was founded. It has grown year by year since, and today is nationally known as the company which formulates specific finishes for specific products and purposes.

"THE KEY TO THE RIGHT FINISH"

. . . E Lilly FINISHES

VARNISH COMPANY

Indianapolis, Indiana • Gardner, Mass.

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Rincontrol

THE NON-GLARE
TEXTURED ENAMEL FINISH

THE UNDERWOOD All Electric TYPEWRITER

... features an all electric keyboard
for smoother operation of the machine

... and a non-glare Interchem Finish
for smoother operation of the typist!

When a typist's eyes are tired, she feels tired all over. She makes more mistakes, becomes short-tempered, and tends to blame the machine. That's why engineers for the Underwood Corporation selected Interchem Rincontrol, the beautiful, non-glare, textured enamel for the finish on their new typewriter, the super-efficient Underwood All Electric.

Production-wise, Rincontrol has many advantages, too. It covers in one coat, has good adhesion, dries to a uniform appearance at different temperatures and by different drying methods, and is ideal for baking in infra-red ovens. It also resists salt spray, humidity, and perspiration, and withstands abrasion and marring well.

Send for specific data on Rincontrol *now*. Write Interchemical Corporation, Finishes Division, 57 State Street, Newark 1, New Jersey.

Interchem Finishes

Interchem, IC and Rincontrol are registered trade-marks of Interchemical Corporation.

THE NEW P-B FLEXIBLE SYSTEM

GIVES YOU TOMORROW'S CONVEYOR TODAY

Requires lowest capital investment . . .
occupies least space . . .
and is unequaled in reducing costs.

IF YOU ARE OPERATING a finishing department handling wood or metal products, we suggest you telegraph, telephone or write.

ENGINEERS • MACHINISTS • STEEL FABRICATORS • ERECTORS

PALMER-BEE Company

DETROIT 12, MICHIGAN

ORIENTAL INSPIRATION BY HERITAGE

The fine veneers and distinctive parquetry pattern of this Far East inspired Heritage design, are further dramatized and enhanced by a special finish developed in our studios. The research that went into the creation of this finish is typical of the exacting care given every job to insure harmony with design, durability, and workability for each production need. This sort of teamwork between our studio facilities and the manufacturer results in factory economy and increased sales appeal.

For further information regarding our studio facilities and services, please write to

GRAND RAPIDS VARNISH CORPORATION
GRAND RAPIDS, MICHIGAN
Makers of the Famous Guardsman Finish

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the 18th of each month by
PRACTICAL PUBLICATIONS
Incorporated
1142 N. Meridian St.
Indianapolis 4, Ind.
Telephone Riley 6771

Industrial FINISHING

W. H. ROHR, Editor P. C. BARDIN, Associate Editor

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OVEMBER, 1949
Vol. XXVI, No. 1

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Acceptance under Section 34.64, P. L. & R., authorized

26 TWENTY-SIXTH YEAR OF PUBLICATION

Starting Our 26th Year

WITH THIS November 1949 issue (Vol. XXVI, No. 1) INDUSTRIAL FINISHING Magazine starts on its second Quarter of a Century of publication, having just completed its first 25 years with October issue. How, when, where, why, and by whom the magazine was started —all of this is revealed in the Silver Anniversary issue of one year ago. Facts presented on pages 28 and 29 of November 1948 issue have not changed except that the magazine and its personnel are now one year older.

The purpose and aim of INDUSTRIAL FINISHING Magazine is to present new and authoritative information about materials, equipment, supplies and methods developed for and used in the application of protective and decorative coatings to products made in factories on a production basis. It is a convenient, unbiased and inexpensive source to which practical and technical finishing men and executives can look for help on any problem or question relating to product painting and finishing. It is always available as a handy and reliable medium for the exchange of facts, suggestions and ideas.

The magazine maintains cordial relations with everyone in the industries it serves. No one needs to be apprehensive about what INDUSTRIAL FINISHING is going to publish about any reputable firm's products, methods, equipment or personnel. The publication's aim is to be helpfully cooperative and friendly to all, with no special or exclusive favoritism extended to any individual, firm or group. This policy of editorial fairness isn't always easy to maintain but, like honesty, the publisher has found it to be the best policy.

In conclusion, the publisher takes this occasion to thank all readers, advertisers and friends for their encouragement and splendid support, and to assure them that INDUSTRIAL FINISHING Magazine will continue to maintain its editorial excellence and to improve, where possible, all elements that contribute to the merits of the magazine's service, its contents, its appearance and its monthly distribution to readers.

W. R. Rohr

Dolan's 35% HI-SOLIDS LACQUER

. . . sprays right from the drum: requires no thinning or heating. 35% solids in a single application.

OUTSTANDING!!

. . . Because it can be sprayed without the addition of thinners or the necessity of pre-heating to bring down to spraying viscosity, Dolan's 35% Hi-Solids Lacquer gives an improved finish at greatly reduced cost. It is unusually tough, with exceptional cold check resistance. Very light in color. Fits into any finishing schedule. A demonstration will prove convincing. Write us for 5 gallons at drum price!

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V. J. DOLAN & COMPANY, Inc.

Manufacturers of "Unquestionable Quality"

INDUSTRIAL FINISHES

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BErkshire 7-0100

Mar and Burn-Proof Table Tops have been developed. To produce this treated plywood, veneers of mahogany, korina, oak, walnut, etc., are backed with a thin layer of aluminum foil, then steeped in a hot bath of melamine plastic. The resulting plywood, although it does present certain difficulties to the cabinet maker, has the same appearance, and may be handled in much the same way as non-impregnated plywood. Tests have shown that the treated plywood will resist severe punishment without denting, peeling, splintering or scorching. Treated plywood is sold under the trade names of Truwood, Realwood and Parkwood.

* * *

To Cut Production Costs. High cost of labor is not the only factor that prevents a reduction of manufacturing costs, according to R. B. Douglas, president of the American Society of Tool Engineers.

Two other important factors are, lack of information in industry as to what is available in new cost cutting methods and equipment, and a serious shortage of competent sales engineers. A means of correcting one of these faults is offered by the technical society in the announcement of plans for an extensive exposition of new cost cutting methods and equipment to be held in Philadelphia in April 1950.

Mr. Douglas explained further, "Informative advertising by the manufacturers of cost cutting equipment can do a big job, but it can't do it all. It takes man power to answer all of the questions, where the equipment can, and where it cannot be used, where it will save money and where it will not. That sort of job calls for experienced sales engineers who are specialists in their particular branches of tool engineering."

* * *

Steel Tubing has been developed from steel alloy that will withstand pressure of 10,300-lbs. per square inch at 1000° F. This tubing was developed especially for the two known processes, direct hydrogenation and gas synthesis, of converting coal to oil. These processes involve high temperatures and unusually high operating pressures.

This tubing should find many places in other industrial processes where similar high temperatures and pressures are required.

* * *

Foremen College. In the interest of foremen education New York University (Washington Square, New York, N.Y.) Adult Unit of the Division of General Education is offering a training course to men and women who are in, or aspire to supervisory positions. Certificates will be awarded students completing the requirements.

Courses include management technique for foremen and supervisors, industrial psychology for executives,

(Continued on page 8)

FOR TOP OPERATING EFFICIENCY at Reduced Maintenance Cost PRODUCT IMPROVEMENT...

PLANT ENGINEERS RECOMMEND

Schmieg

DUST AND FUME CONTROL EQUIPMENT

...SC SANDING BOOTH ...per ventilation keeps ...s from escaping to other ...rts of plant.

CYANIDE FURNACES fume exhaust system is connected to a Centri-Merge Washer.

Merge Arrester Unit on a cast iron dust exhaust system.

To Fit Both Plant and Product

Dust and fume control equipment correctly designed and manufactured is of vital importance to the safety and health of plant personnel, and results in product improvement. Schmieg engineers pioneered this principle of dust and fume control.

Plant engineers call upon Schmieg to design and build dust and fume control equipment to fit both plant and product. Typical installations by Schmieg include dust and dirt arresters, fume exhaust air washers, kerosene and welding fume exhaust units, stock and dust handling equipment in textile plants, cyclone collectors for brake lining dust, polishing and buffing dust collectors . . . to name just a few.

Schmieg dust and fume control units give you (1) reduced operating and maintenance expense, and (2) maximum efficiency in the removal of dust and fumes for improvement of working conditions and product quality.

THE best AIR PURGE is CENTRI-MERGE

Our engineers will be pleased to consult with you in the solution of your problem

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Key to Wrinkle Perfection

Use Duralac's fine, medium and coarse wrinkles to solve your problems in finishing rough castings. Available in black, grey and other colors. These Duralac wrinkles bake to full hardness in one hour at 275° F. Oven hold out, one hour; can be baked under infra red. Write for sample.

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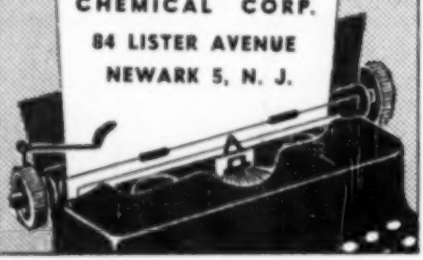
CHEMICAL CORP.
84 LISTER AVENUE
NEWARK 5, N. J.



production management for foremen and supervisors, methods and motion study, time and operation study and understanding unions.

Paul A. McGhee is dean of the Division. A letter will bring full particulars as to scope, length of course and cost.

* * *

A Toy Making Course is also available at New York University this Fall. This course is called "Research in the Design, Construction and Selection of Educational Toys and Games."

Toys will be studied to evaluate their educational and recreational value. Toy construction and testing of models will be taken up. The course will include marketing problems and patent laws.

* * *

Aluminum Welding. A new process of welding aluminum has been perfected. The new process joins aluminum plates ⅛ to 3-in. or more in thickness, at least four times faster than any previously known method. The welds are equal in quality.

It is said that the new process requires less skill than present methods, and is adapted to semi-automatic and machine operation. No solid fluxes are needed, there are no slugs to be cleaned from the welded joint and work is not interrupted to change electrodes.

* * *

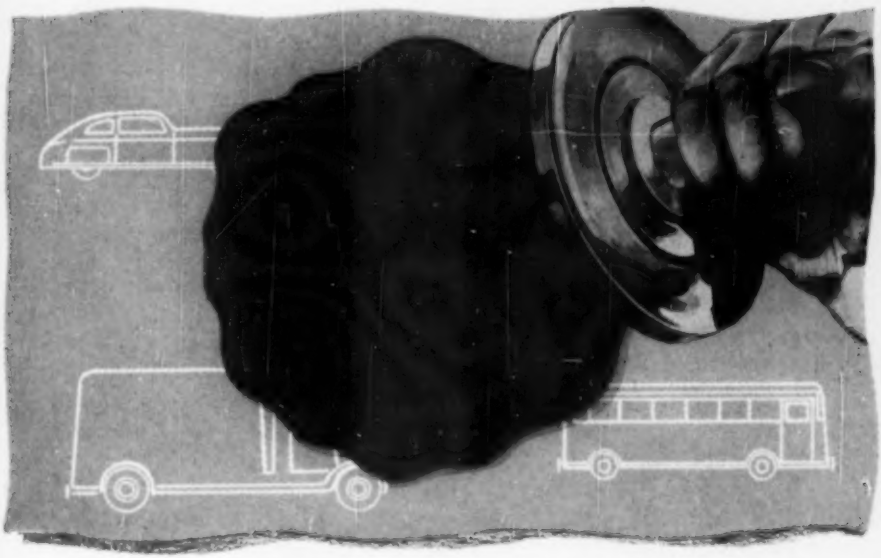
Tin Users Note. Free technical services for users of tin in the United States is now available from the Tin Research Institute, Inc., 492 W. Sixth Ave., Columbus, Ohio. Technical experts on the staff are available for consultation and practical assistance either at the Institute, or at consumers' plants.

R. J. Nekervis is the supervisor of metallurgical development, and R. M. MacIntosh is supervisor of chemical

(Continued on page 122)

a TOUSEY *Exclusive!*

A Specially Developed Coating for the...



When the McCord Corporation needed a special coating which would not only provide the proper sealing qualities but also eliminate unnecessary waste of gaskets on engine inspection lines, they came to Tousey.

Tousey's Special Product Department created a coating to answer McCord's problem. This same coating has enabled McCord to produce today's all-metal gasket, standard of the automotive industry.

We welcome your inquiries.

McCORD CORPORATION
TRADEMARKS OF DISTINCTION

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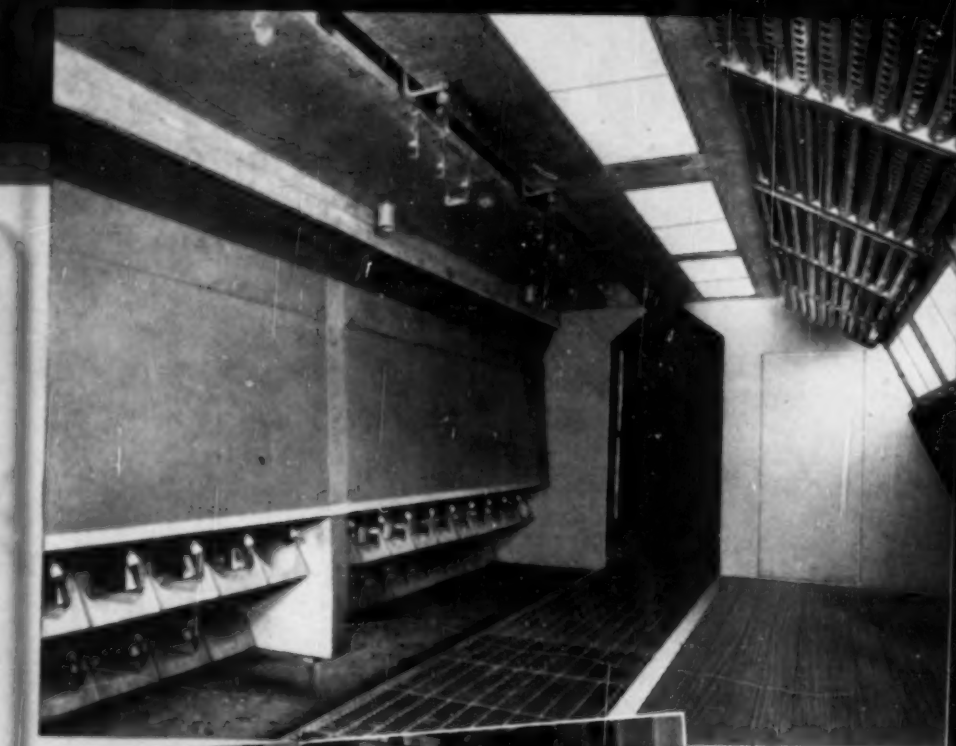
SUPPLYING AMERICAN INDUSTRY SINCE 1885

COMPLE



Right Above: General vie
finishing enclosure sho
pressurized up-tunnels to
Baking Ovens above. A
Interior of Hydro-Filter
Booth which is supplied
filtered air. The complete F
ing System includes a six
Metal Cleaning and Rust
ing Machine, Dry-off
Japanning Dip Tank and
closed Drip Area, Dip Enam
Tank and Drip Area, H
Filter Spray Booth and
Finish Baking Ovens lo
above—one for Japanned
and one for Synthetic Enam
parts. Oven heating unit
equipped for either Gas
firing—switch may be ma
a matter of seconds w
interrupting production.

Japanning Dip Tank with Enclosed Draining Area in near and Enclosed Drip Area at right. These areas are supplied with filtered air which is moisturized in winter.

M

Finishing SYSTEMS

. . . for ENAMELS • LACQUER • PAINT • VARNISH

Where Lasting Beauty is Imperative, You'll Always Find MAHON ENGINEERED Finishing Systems!

To provide a large midwestern stove manufacturer with ultra-modern finishing facilities which would insure the finest finish obtainable at a minimum cost per unit, Mahon engineers designed a three-in-one finishing system that permits dip enameling, spray enameling, and japanning by the dip process. All parts pass through the cleaning and rust proofing machine and the dry-off oven. Parts to be japanned remain on the same conveyor, and are carried on through the japanning dip tank, drip area, and the pressurized up-tunnel to the baking oven. Parts to be dip enameled or spray enameled are transferred, after emerging from the dry-off oven, to a second conveyor line. On this finishing line, dip enameling and spray enameling operations are alternated to suit production requirements. When switching from dip to spray enameling, the synthetic enamel in the dip tank is dumped into storage tanks below, permitting parts to pass through the dip and drip zone into the Hydro-Filter Spray Booth for coating and thence through a pressurized up-tunnel to the Enamel Finish Baking Oven. This is a typical Mahon solution of the finishing requirements of one manufacturer. You, can also benefit from Mahon experience, which is world-wide in scope and covers every industry where finishing constitutes a major production operation. This experience, plus constant research and development, has endowed Mahon engineers with a wealth of technical knowledge and practical know-how not available to you elsewhere. See Mahon's Insert in Sweet's Mech. Ind. File or write for Catalog No. A-649.

THE R. C. MAHON COMPANY

HOME OFFICE and PLANT, Detroit 11, Mich. • WESTERN SALES DIVISION, Chicago 4, Ill.

Engineers and Manufacturers of Complete Finishing Systems—including Pickling Equipment, Metal Cleaning and Rust Proofing Equipment, Dry-off Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Systems, and Drying and Baking Ovens. Also, Core Ovens, Hydro-Foam Dust Collectors, and many other Units of Special Production Equipment.

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For High Production Sanding

Put the improved, lightweight, powerful air driven Mity-Midget to work for you. *Cut your sanding time 75%* . . . and improve your results. Special patented features make the Mity-Midget vibrationless, yet fast orbital action at 4000 to 6000 rpm assures a saving in finishing time. National has a complete line of sanding machines . . . both air driven and electric with orbital and straight-line actions. Apply production line methods to your finishing operations with a *National Sander.* Write today for details on the complete line, or see your local jobber.

The finest portable sander yet developed

NATIONAL AIR SANDER INC., Rockford, Ill.

● Two factors—cost and appearance—play important parts in the sale of your product. You can control these factors by economical and efficient operations in your finishing department.

Operational costs can be reduced by reviewing your entire finishing procedure and materials, reducing the number of rejects, and eliminating production stoppages through preventive service.

Appearance can be improved by the use of a custom-built Glidden finish formulated to function correctly with your facilities.

Make certain that your product *wins* in today's competitive market. Call on Glidden Technical Service which is prepared and qualified to assist you in attaining both of these objectives.

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11001 Madison Avenue, Cleveland 2, Ohio

Factories and Sales Offices in: Chicago (Nubian Division), Cleveland, Reading, Pa.; Minneapolis, New Orleans, St. Louis, San Francisco. *In Canada:* The Glidden Company Limited, Toronto, Ontario. *Sales Offices in:* Atlanta, Boston, Los Angeles and New York City.

QUALITY Glidden PRODUCTS

TAKE YOUR PROBLEM TO...

Glidden

Industrial Finishes for every purpose

4

TYPES OF SYNTHETIC FLAT FINISHES TO CONFORM TO YOUR NEEDS . . . POCKETBOOK

DRYING SCHEDULE

- **FULL RANGE OF SHEENS** . . . from dead flat to gloss
- **NO DULLING OR CLOUDY FLATTENING AGENTS** added
- **A BEAUTIFUL RUBBED EFFECT** . . . will rub clean and clear
- **WILL EITHER AIR OR FORCE DRY**
- **OUR SUPERIOR PROCESS IN CHEMICALLY TREATING RESINS DEVELOPS A FINISH SO SMOOTH . . . YOU CAN FEEL THE DIFFERENCE**

1. **PERLAC SATIN FINISH** . . . out of the dust in 5 to 7 minutes . . . one coat looks and rubs like two coats of lacquer . . . liquor proof . . . water proof . . . won't haze or sweat back.
2. **PERFEX SATIN FINISH** . . . quick set . . . quick dry . . . water proof . . . liquor proof . . . full smooth body . . . won't haze or sweat back.
3. **PERFECTION SYNTHETIC FLAT FINISH** . . . water proof . . . liquor proof . . . beautiful rubbed effect.
4. **PERFECTION QUICK DRY FLAT VARNISH** . . . beautiful . . . rubbed effect . . . or rubs well . . . smooth.

PERFECTION PAINT & COLOR COMPANY

715 E. Maryland St., Indianapolis 2, Indiana

Perfection SYNTHETIC FLAT FINISHES

WATER-PROOF LIQUOR-PROOF

FULL PROTECTION
until you want it PEELED
. . . THAT'S
COPEEL

. . . the modern plastic coating that gives flexible-film protection to the surface of your product

Why run the risk of expensive rejects of parts damaged during storage . . transit . . even assembly? Through all these stages Copeel *protects* your products against marring – scratching – rust and corrosion!

Copeel protects the highly polished metal surfaces of precision parts . . . can also be used over properly cured synthetic baking enamels. Applied by dip or spray method, Copeel quickly hardens to a tough flexible film that peels off easily – like the skin of a banana – when required.

Write for Technical Data Bulletin #T504 for full details regarding the most suitable type of Copeel to protect your products. Better yet – let an M&W Sales Engineer discuss with you the best and most economical way to use Copeel.

PIONEERS IN PROTECTION
M&W Co 1876

. . . where curiosity goes with finishing problems

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Boston 15, Mass. • Chicago 12, Ill. • Los Angeles 34, Calif.
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Industry's 3 Newest

COLD STRIPPERS

Fast! Economical! Safe! New!

"UNISOL"—for removing all baked enamels! Used cold—Non-inflammable—Non toxic—Strips baked enamels in seconds—Used for all type metals—Requires no rinse—Non-injurious to hands or clothing.

"UNISOL No. 2"—A new cold stripper for japans and vinyls—Non-inflammable—Strips tough japans and vinyls in matter of minutes—Used for all type metals.

"STRIPPER 202"—Something new for removing "stop-off" lacquers in seconds—Will not tarnish highly polished metal surfaces—Non-inflammable—Used cold—Non toxic.

Samples and further information supplied on request.

CHEMCO PRODUCTS CO., Inc.

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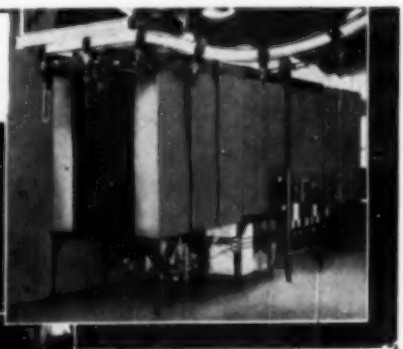
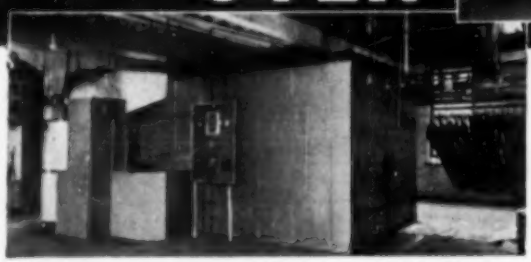
for efficient straight-line production—get a

LANLY CONVEYORIZED OVEN





Lanly experience embraces the designing of many such ovens for a large variety of purposes.

A letter or phone call will make our counsel available without obligation. Write for literature.

THE LANLY CO. 760 Prospect Ave. CLEVELAND, OHIO

Highlights on

HILO

Product Finishes

ONE COAT

HAMMERKRAFT

AIR DRY OR BAKE

An attractive hammered metal effect with sharp design, clear toned colors and good gloss.

It is easy to apply with any type of spray gun—design develops in a few minutes. It holds up on vertical surfaces. Package stability is good.

Air dries overnight or may be baked at 250° F. for 30 minutes.

Available in standard colors—Silver, Blue, Green and Red.

Special colors will be made on orders for 25 gallons or more in one shipment.

Send for Bulletin No. 25-OC—and a trial sample in any standard color.

HILO

HILO VARNISH CORPORATION

42-60 Stewart Avenue, Brooklyn 6, N. Y.

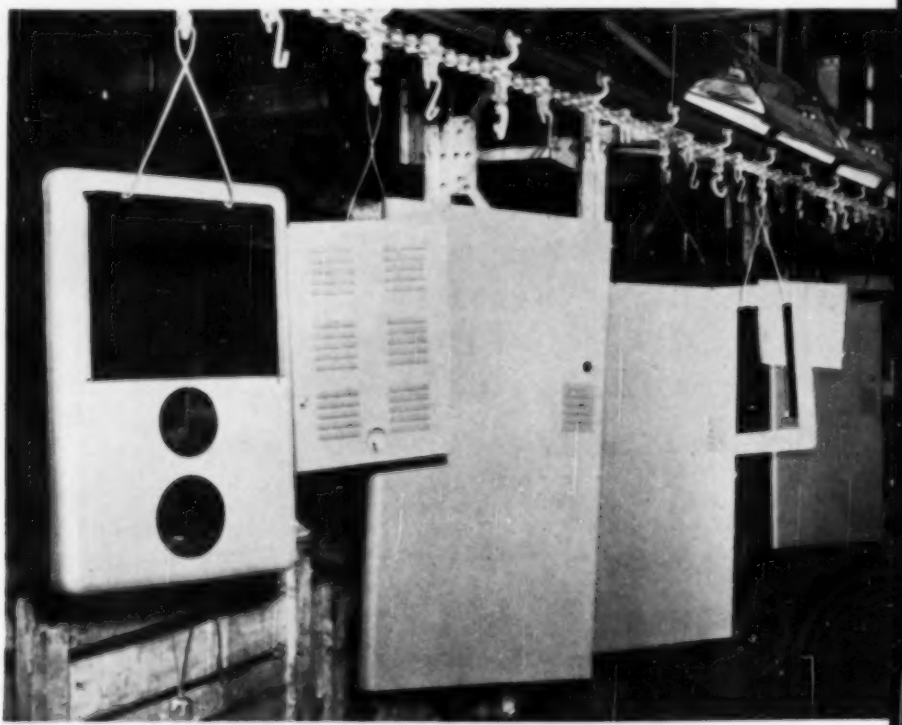
2420 Washburne Ave., Chicago 8, Ill. • Park Sq. Bldg. Boston 16, Mass.

★ ★ ★ *Wrinkle Finish for*

STEEL FURNACES for modern homes and buildings are painted for protection, utility and appearance. The finish coating must embody simplicity, economy, reasonable attractiveness and rugged durability. A modern wrinkle enamel finish has these features.

Naturally the sheet steel panels, of which these furnaces are built, must be protected against moisture to prevent rust. The paint or enamel coating must have flexibility, perfect adhesion, reasonable marresistance and a uniformly presentable appearance. Furnaces must have a finish that will withstand more or less rough treatment such as knocks, bumps and scratches, and still retain a satisfactory appearance. Flexibility and perfect adhesion are necessary too, because if the finish could be chipped off easily, rust would soon begin.

Where wrinkle finished steel panels and parts are inspected in front of banks of fluorescent lights just before being removed from overhead chain conveyor.



Ingersoll Steel Furnaces

By Adrian Heystek

Plant Superintendent
Ingersol Steel Division of
Borg-Warner Corporation

Steel panels and parts for the outer shells of these new furnaces are cleaned and given a wrinkle finish for real service, durability and attractiveness. Uniformity of color and texture is necessary on the various parts because they are finished and often stored, to be assembled into complete units to fill orders.

Because of our method of operation, uniformity of color and wrinkle pattern are essential. Furnace parts (panels for the enclosure) have been standardized for the various models. Some of these parts are interchangeable.

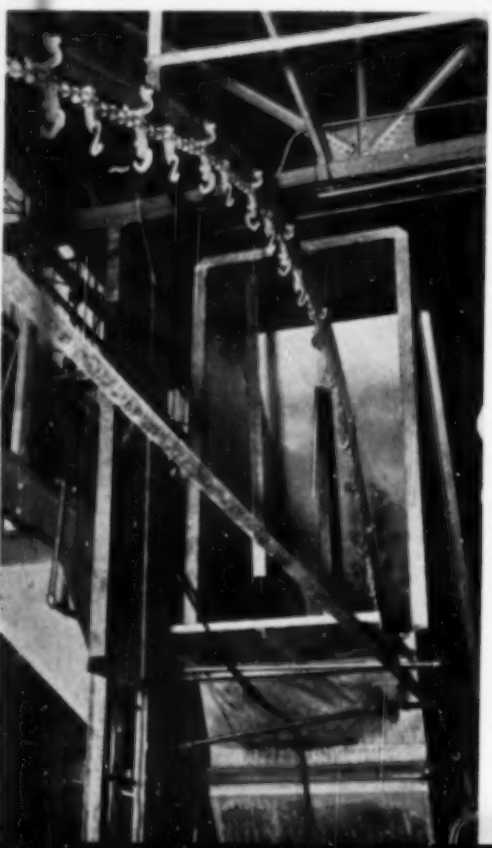
Fabricated panels and other parts for the exterior are moved to the finishing room. Production control specifies the number of furnaces to be finished in each color. When completed, the finished panels are stored in a stock room from which they are requisitioned for assembly and shipment. These various furnace panels and parts are finished at different times, yet when they are assembled to make complete furnace enclosures, they must match in color and in the size and character of wrinkle pattern.

How Uniformity of Color and Pattern is Accomplished

Exact uniformity is made possible through the continuous use of wrinkle paint based upon an accurately controlled formulation, plus

strict control of baking time and temperature. The baking time is easily controlled by operating the overhead monorail conveyor at a uniform standard speed of 20-ft. per minute. Uniform baking heat is assured through the use of thermostatic oven control, a visible recorder and a satisfactory oven. Viscosity of wrinkle paint, fluid and atomizing pressures are carefully watched and controlled. Through continuous control of these several factors, we get uniformity in the color and pattern of our finishes.

High-level water-curtain spray booth where steel panels are painted with aluminum on the inside and sprayed with wrinkle finish in color on the outside. The exit end of degreaser is at extreme lower left.



Where furnace parts enter the big vapor degreaser. Conveyor chain rises from floor level, where parts are loaded; then descends into the vapor zone of the vapor degreaser.

Cleaning the Surfaces in Preparation for Finishing

The actual finishing system is quite simple. Furnace parts are hung to the overhead chain conveyor at a point just below the high-level bake oven. They are carried up and then down into the trichlorethylene vapor degreaser. Upon leaving the degreaser they travel up to a high-level water-curtain spray booth. Just before they enter this booth, they are wiped with a cloth moistened in mineral spirits, to remove any residue and to insure cleanliness.

In the spray booth, the first operator sprays all inside surfaces with an aluminum coating which is made up in the proportion of 15

here's what they say about

CrysCoat

FOR PREPARING METAL SURFACES
FOR PAINTING,
THERE IS NOTHING TO EQUAL THE
OAKITE CrysCoat* PROCESS!

YES, painting and finishing superintendents and foremen, process and product engineers, job paint-shop owners, chemists and metallurgists everywhere, are saying good things about the OAKITE CrysCoat PROCESS. They have found that it:

- **cleans metal surfaces and conditions them for painting**
- **improves the adhesion of paint to metal**
- **prevents corrosion before metal is painted**
- **localizes corrosion under paint if finish is scratched or damaged**

and does all these things with minimum equipment . . . in minimum time . . . at minimum cost

FREE Write to Oakite Products, Inc., 32F Thames St., New York 6, N. Y., for illustrated folder F7642 which describes the OAKITE CrysCoat PROCESS and tells how it *cuts cost 10 ways* in preparing metal for painting.

*Reg. U. S. Pat. Off.

OAKITE
REG. U. S. PAT. OFF.
INDUSTRIAL CLEANING MATERIALS • METHODS • SERVICE
Technical Service Representatives in Principal Cities of U. S. & Canada

gallons of light varnish, 25 gallons of thinner and 40-lbs. aluminum paste. This aluminum paint is sprayed at an atomizing pressure of 50-lbs., and a fluid pressure of 25-lbs.

The second operator sprays all outside surfaces with wrinkle enamel (of the desired color) having a viscosity of 45 seconds at 70° F., measured in a No. 4 Ford cup. Atomizing pressure is 60-lbs. and fluid pressure is 15-lbs.

As the parts travel, the finish is allowed to flash (air dry) for about five minutes before they enter the indirect gas-fired convection oven where the finish is baked for 25 minutes at 325° F. This oven is on the same high level as the spray booth, thus leaving valuable operating and storage space below. As the finished panels leave the oven, the conveyor carries them down to floor level where they are removed from the conveyor at one or both of two unloading stations.

Liquid Plastics Div. of F. E. Corp. Appoints Men for Ohio and Ill.

Through its manager, L. H. Miller, the Liquid Plastics Division of Ferro Enamel Corp., Cleveland, Ohio, announces the appointment of new representatives for Ohio and Illinois. O. P. ("Buzz") Taylor will handle the sale of Vedoc organic industrial finishes, made by the company, in the Northern Ohio territory, while G. J. ("Joe") O'Roark will act in a similar capacity in the Chicago, Ill. territory.

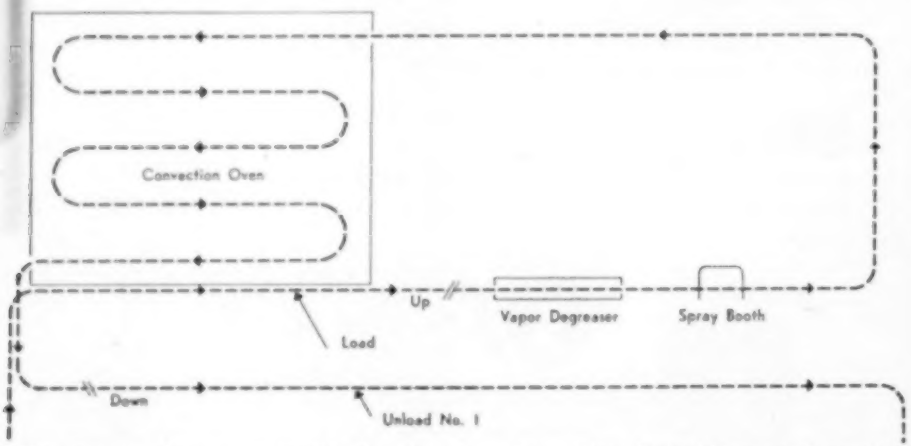
Mr. Taylor's headquarters will be in Clyde, Ohio.

Mr. O'Roark will have headquarters in his new capacity in the Chicago District Offices of Ferro Enamel Corporation, parent firm of Liquid Plastics Division, located at 336 No. Central Ave., Chicago, Ill.

Sta-Dull Polish Correction

Star Chemical Co., Inc., 4500 W. Cermak Road, Chicago 23, Ill., calls attention to two slight errors in the write-up about its Sta-Dull Polish, "Satinol," which appears on page 96 of October 1949 issue. "Satinol" was misspelled in the title; and the technique of using this polish to produce a permanently dull luster was incorrectly given.

The "Satinol" polish is applied with a polishing pad in the usual way; this gives a luster polish. Then—and not until then—the luster may be dulled if desired by rubbing the polished surface with fine sandpaper or steelwool. After such rubbing, the dulled luster remains, as the name "Sta-Dull" implies.—EDITOR.



This diagram shows approximately the plan view of operations for finishing metal panels.

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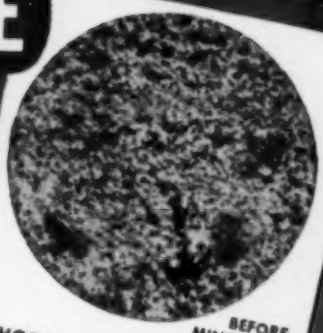
CLEANS..NEUTRALIZES ..PHOSPHATIZES IN "60" SECONDS

- No Rinse Required
- Adaptable To All Washers
- Minimizes Maintenance
- Saves Time
- Saves Space

PRODUCES BETTER CLEANING—STRONGER PAINT BOND

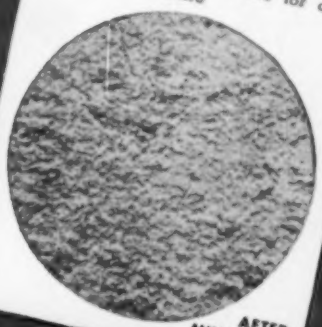
Don't gamble paint performance over a metal surface that has been only cleaned. Follow the lead of other wise manufacturers (toys to automotive truck cabs) Phosphatize the surface with MINIT-KOTE, a new original product that cleans and provides a quality paint bond in one operation at a minimum cost. Write us your cleaning problems and ask for a KLEM Service Engineer to help you with the solution—No obligation.



BEFORE MINIT-KOTE

PHOTOMICROGRAPHS PROVE VALUE OF MINIT-KOTE

Photographs show a dirty, hot-rolled steel surface before and after a one minute wash with MINIT-KOTE at 165°F in a power washer 1½% by volume concentration. Neither paint nor primer will adhere to a dirty, oily or rusty surface. Thorough cleaning is not sufficient for a satisfactory job. MINIT-KOTE cleans, removes light rust and forms an adherent phosphate coating on the cleaned surface in one economical operation. Write for descriptive literature.



AFTER MINIT-KOTE

KLEM Chemicals Inc.

OFFICES IN PRINCIPAL CITIES

14401 LANSON • DEARBORN, MICHIGAN

Maroon Crackle Finish on Motorola Portable Radios

Operations include two-stage metal cleaning; electrostatic spraying of primer; hand spraying a coat of crackle lacquer; air drying; top coat of maroon colored enamel; oven bake; pen marking the dials and finishing them with gold-tinted lacquer.

By W. E. Smith

Plant Manager
Enamelers & Japanners

THE FINISH on any portable radio receives more actual wear, and often much more abuse than the finish on any other model of radio. It must be smooth so that dust will not accumulate, and so that it can be easily cleaned. The finish must withstand frequent handling, minor abrasions and bumps, and still retain a presentable appearance. Perfect adhesion of the finish to the metal case is necessary.

To obtain these results, we insist upon thorough cleaning of the metal before the first coat is applied. We use a maroon colored primer, a coat of crackle lacquer for design, and a protective top coat of maroon colored enamel.

The body of the case is a zinc die casting, and the cover is terneplate. This lead-coated steel cover is necessary for the operation of the radio set which is installed later. The face plate is steel. The inside of the case and cover are not finished.

Two-Stage Hot-Solution Conveyorized Cleaning

The cases, with cover assembled, are hung to an overhead conveyor which carries them through a 2-stage metal washer. In the first stage they are sprayed with an alkali solution at 195° F. In the second stage the spraying solution is a mixture of water and phosphoric acid at 165° F. Cleaned cases pass through a gas-fired dry-off oven which is part of the metal washer.

Electrostatic Spraying Of Primer Coat

The clean dry metal cases are transferred to a spindle conveyor (traveling vertical-spindles) which moves through an electrostatic spray booth. This conveyor travels at a speed of 20-ft. per minute. Metal holders, mounted on top of vertical spindles, cover about ¼-in. of the surface at the edge of the case opposite the cover. It is not desirable to have any finish on this area, as this edge fits down into the steel face plate. While the primer

Using a special fountain pen and ink to fill in lines and characters of finished radio dials.

coat is being sprayed, the covers are closed to protect the concealed edge of each case.

Maroon colored synthetic primer is sprayed from two fixed spray guns in the electrostatic field. The viscosity of this primer is 30-seconds at 78° F., as measured by a No. 4 Ford cup.

Atomizing pressure at the two fixed guns is 20-lbs., and the fluid pressure is 3½-lbs. Spraying electrostatically, the entire outer exposed surfaces of every case are uniformly coated, even though the spindles do not revolve within the line of spraying.

As radio cases leave the static field of spray painting they are removed and placed on tiered trolley trucks suspended from an overhead monorail system. This system extends throughout the entire plant. Through a series of switches, trolley trucks may be quickly moved into air-dry storage, to bake ovens, to hand spray or electrostatic spray booths, or to work benches for masking and other hand operations. After the prime-coated metal cases air dry for 30 minutes, they are delivered to the masking station

Close up of guns spraying top coat enamel on radio cases. Note position of guns in relation to cases, which are moving toward the observer. The electrostatic field into which the paint is sprayed causes the surfaces to be uniformly coated.

Hand spraying transluscent gold lacquer on face plates in the waterwash spray booth.

"Save the Surface"

with **SURPHOS**

.....METAL PHOSPHATING CHEMICAL

Prepares Metal for Painting

TO USE SURPHOS

. . . dissolve in water to a concentration of one ounce per gallon and apply to metal by dipping or spraying. Acid proof equipment not needed.

- **CLEANS**
- **FORMS PHOSPHATE COATING**
- **PREVENTS RUSTING**
- **IMPROVES ADHESION of PAINT**
- **INCREASES HUMIDITY and SALT-SPRAY RESISTANCE of PAINT**

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COLD STRIPPER

Fastest in Action **Non-Inflammable**

Lowest in cost **Non-Injurious**

Write for free testing sample or order five gallons at the drum price

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Your Signal! **9-8-7-0**

CLEAR METAL LACQUER

For

silver, cadmium, zinc, copper, brass, aluminum.

OUTSTANDING

1. Adhesion to metal surfaces
2. Resistance to sulfur tarnish
3. Resistance to oxidation
4. Resistance to perspiration
5. Resistance to abrasion

Pale in color. Takes 100-200% reduction. Dries under 15 minutes.
A premium product — priced at ordinary lacquer levels.

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where masking tape is applied to cover ¼-in. of the surface and edge of the case opposite the cover to protect it from the hand spraying operation which follows. This is the same edge that fits into the metal holders mounted on top of the vertical spindles of the conveyor in the electrostatic spray booth.

Crackle Lacquer Applied By Hand Spraying

Next the cases go to hand spray booths where a coat of maroon colored air-drying crackle lacquer is applied. This material is mixed to a viscosity of 45-seconds at 78° F.; it is applied with an atomizing pressure of 20-lbs. and a fluid pressure of 10-lbs. After being sprayed, the cases are returned to trolley trucks to go into air-dry storage for one hour. While air drying, the smooth lacquer coating separates to form the crackle pattern which enhances the appearance of the case, and compensates in a measure for any scratches, bumps or knocks the case may receive later while in service.

Top Coat of Lacquer is Sprayed Automatically

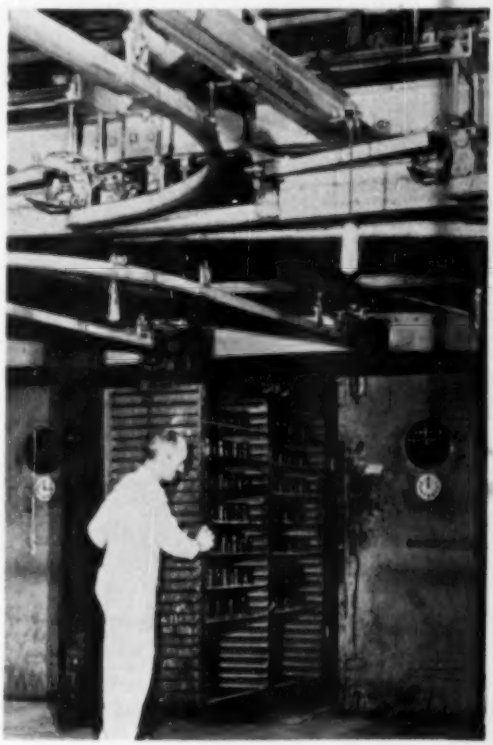
After the crackle coat has dried the cases are again placed on metal holders on top of vertical spindles of the electrostatic spray booth conveyor. For this operation, metal inserts are placed inside the case to hold the cover slightly open. Then the top coat of maroon lacquer enamel is electrostatically sprayed. This material has a viscosity of 30-seconds at 78° F. (No. 4 Ford cup) and is sprayed at the same pressure as the prime coat.

Again finished cases are returned to the trolley trucks to go to a batch type, indirect gas-fired, convection oven where the finish is baked for 30 minutes at 300° F. After cooling, the finished cases are moved to the packing room to be wrapped and boxed.

Face Plates are Masked; Hand Lined and Finished

The face plate which fits over the edge (protected in all finishing operations) opposite to the cover, is made of steel with a brush chrome

Trolley trucks loaded with finished cases entering batch type oven. Note overhead trackage of conveyor system. Handles at ends of chains control switches to provide extreme flexibility for movement of trucks.



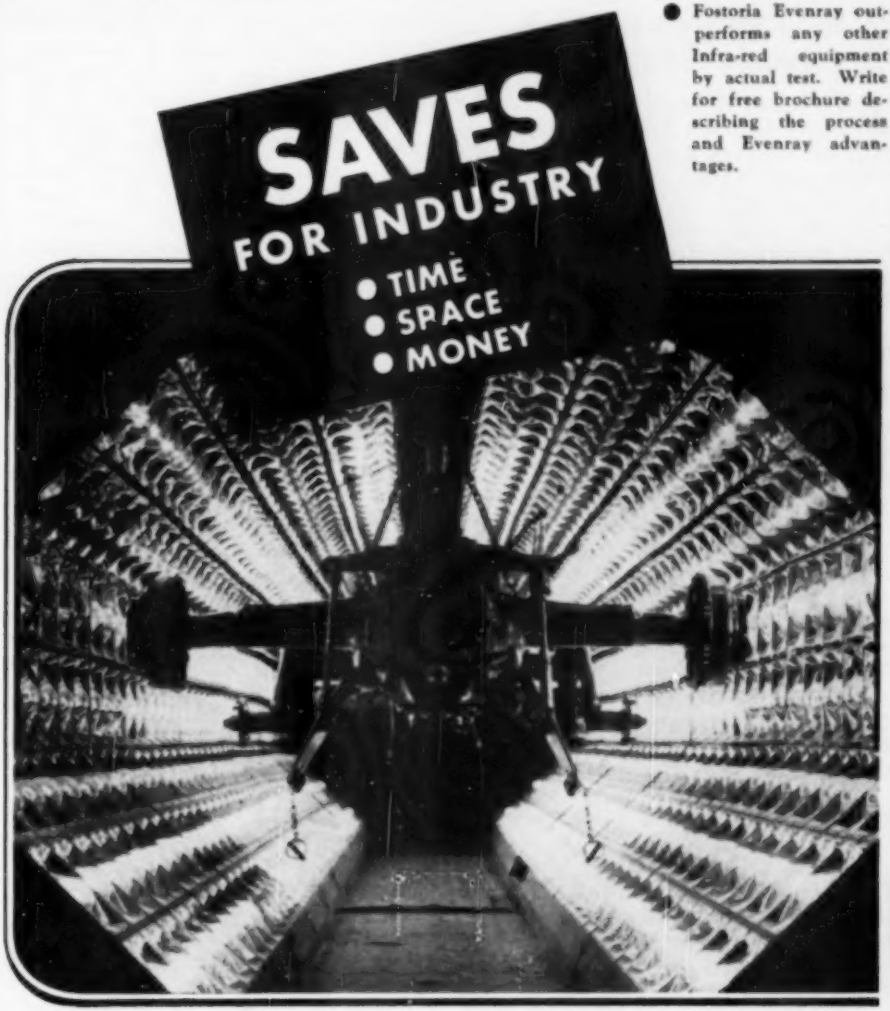
finish on the face. The plate is punched to receive volume and tuning knobs. The face has indented dials for volume and wave lengths.

These plates are individually placed in precision metal masks to protect both face surfaces, leaving the four edges exposed. The edges of the face plate receive the same finish coats as the cases. All coats are applied by hand spray. After the final bake, the face plates are transferred to work benches where operators, using a special type of fountain pen, fill in the lines, characters and numbers with maroon colored drawing ink. The ink dries in about 30 minutes. Then the face plates are again placed in precision metal masks which protect the edges (maroon crackle finished) and the under side of the plate. The face of the plate is hand sprayed with a transluscent gold lacquer to protect the inked-in lines and characters and the brush chrome finish; the gold lacquer also eliminates glare and produces an attractive finish for the exposed face plate. After air drying for 30 minutes, the lacquered face plates are wrapped and boxed for shipment.

FAILURE to have on hand even the smallest part required for a repair, or the proper lubricant, thinner or material, may result in serious delay in production, broken schedules and disappointed customers. Conversely, when a large inventory of spare parts for repair and upkeep of machines is allowed to accumulate, unnecessarily heavy carrying costs and investment add to overhead, increase operating costs and reduce profits. A positive system of control is a real asset to any business, large or small, because it helps to assure continued profitable operation in important ways.

Four boxcars of paint—approximately 18,000 gallons—recently left the Glidden Company's Cleveland plant bound for the Ford Motor Co. assembly plant in Memphis, Tenn. and for the plant of the Ford Motor Co. of South Africa, Ltd. Although this shipment of body primer is one of the largest orders of a single industrial paint item ever shipped at one time, it is but a fraction of the tremendous quantities of paint used by Ford Motor Companies annually in their expanding world-wide production requirements.

● Fostoria Evenray outperforms any other Infra-red equipment by actual test. Write for free brochure describing the process and Evenray advantages.



EVENRAY INSTALLATION AIDS STREAMLINED PRODUCTION. Harry Ferguson, Inc., Detroit, utilizes a 64-foot Fostoria Evenray paint baking oven with a capacity of 250 assemblies in eight hours—to keep pace with the new assembly plant's production basis of a completed farm tractor every 115 seconds.

THE FOSTORIA PRESSED STEEL CORPORATION
FOSTORIA, OHIO
Oldest and Largest Manufacturers of Industrial Infra-red Ovens

How Heated Interior Keeps Out Cold

TO PREVENT cold air from rushing in through frequently opened railroad and truck shipping doors at the Signode Steel Strapping Company's new eastern plant near Baltimore, Maryland, engineers of the firm have worked out a successful method for "pressurizing" the interior of the factory building.

Because ventilating equipment removes some of the air from the "tightly built" structure and only a small amount of air can infiltrate, mechanical means had to be devised to keep the plant interior under positive pressure.

If a negative pressure existed, excessive amounts of cold air would be sucked into the building when the truck doors and railroad loading doors were opened. By using heating equipment that pulls in fresh air from the outside through a duct, heats and distributes it throughout the building, the air pressure remains balanced or, at times, even becomes positive. This is effective for minimizing the amount of cold air that enters the building through open doorways because it builds a "wall" of warm air to repel the cold.

To heat the large factory building, three Dravo "Counterflo" direct-fired warm air heaters are used. Two of the heaters operate entirely on recirculated air. Fans in the bases of these two units draw air from the plant's floor level, heat and then discharge it through overhead directional nozzles.

The third heater, located in the center of the building, is equipped with a fresh air intake duct and operates either with fresh or recirculated air. The sheet metal, insulated intake duct leads from one side of the base of the heater through the roof of the plant. Dampers, manually operated, are tied in with a mechanical interlock so both move at the same time, one opening and one closing. This prevents the possibility of too little air passing over the combustion chamber. With this arrangement, the heater can be operated on 100% fresh air, 100% recirculated air or a blend of both, depending upon "pressure" requirements. Air entering the heater is propelled over a stainless steel corrosion-resistant combustion chamber that permits rapid transfer of heat from the flame to the air. No refractory lining is needed for the heater combustion chamber.—*Dravo Corporation.*

Hercules Makes Appointments in Sales Force

Two new appointments in the sales force of Hercules Powder Company's Cellulose Products Department were announced recently.

Fred K. Shankweiler, who has been manager of Cellulose Products' New York office for the past two years, has been transferred to Wilmington where he will be supervisor of chlorinated products.

James R. Yeager has been named to succeed Mr. Shankweiler in New York. For the past five years Mr. Yeager has been lacquer marketing supervisor in the home office at Wilmington.

Both men are well-known in the lacquer industry through years of working on the development, testing, and manufacturing of lacquers based on nitrocellulose, cellulose acetate, and ethyl cellulose. They also have addressed chapter meetings of Paint and Varnish Production Clubs.

Chas. Kemen in Milwaukee Area For Klem Chemicals

Mr. Charles Kemen has been appointed sales and service engineer, to represent Klem Chemicals, Inc., Dearborn, Mich., in the Milwaukee area. A graduate chemical engineer of the University of Detroit with experience in metal cleaning and processing, Mr. Kemen will devote his entire time to chemical processing problems and servicing of Klem products.

This appointment is part of a general expansion program undertaken by Klem Chemicals, Inc., in industrial metal cleaning and in other industries not previously serviced. Address of the Milwaukee office is Klem Chemicals, Inc., 312 Wisconsin Ave., Suite 207, Milwaukee, Wisc.

Only *Ransburg* ELECTRO-STATIC Spray Painting...

SAVES PAINT—40% to 60% . . .

SAVES LABOR—Up to 90% . . .

SAVES CLEANUP—Up to 95% . . .

DOUBLES and **TREBLES** Production . . .

No wonder so many manufacturers are specifying Electro-Spray as the heart of their finishing systems . . . No other method of spray painting saves so much in so many ways. Why not write to see if you can enjoy these savings, too.

RANSBURG

RANSBURG ELECTRO-COATING CORP.

Indianapolis 7, Indiana

When it's DeVILBISS

DeVILBISS HINTS ON FINER FINISHING

AIR SUPPLY

Spray guns like most all air operated devices perform only as efficiently and dependably as their air supply. Therefore, careful thought should be given to planning the air supply system at the start and regular inspection maintained thereafter to assure best results in the paint shop.

Selecting the right compressor is the first essential. By this is meant, the right capacity and the right type. The size of the compressor should be determined only after a careful analysis of peak load demands, and even then it is good policy to provide a reasonable reserve for possible unexpected requirements. A slightly oversized compressor is a far better choice than a unit which must constantly perform to its rated capacity for normal load. The type of compressor selected should be determined by several factors. If maximum pressure demands exceed 100 pounds, a two stage design is more efficient. Below this point single stage units are generally employed. If the air consumption is relatively continuous and at a uniform rate, an "unloader" type compressor is generally preferred. Where the demand for air is irregular, an intermittent operating type of compressor is best.

After selecting a compressor give special attention to installation. The motor should be wired by a competent electrician in accordance with the National Electrical Code. Thermal overload protection should be furnished and local voltage conditions checked. Locate the compressor in a cool place at least a foot from the wall where it will receive dry, clean air. When possible it is recommended that the intake of the compressor be piped outside the building to insure clean, cool air. Care should be taken not to place the intake where steam, smoke, dust or exhausted paint spray will be picked up. A hood installed over the intake offers protection from the weather.

In the case of numerous operations throughout a building requiring different amounts of air at various pressures, economies will be gained by a decentralized air supply system. Individual compressors serving each department minimize or eliminate pressure variances, and provide an auxiliary air supply in emergencies.

Pipe lines should always be of sufficient size to provide ample flow of air to the point of use. Air lines are seldom too large but many are found to be too small. Pipes should be as directly connected as possible. If a large number of fittings are used, length of the lines should be reduced or size of the pipe increased. All piping should slope toward a drain leg at the lowest point of the air line. Drain the lines daily in the event automatic drains are not installed. Locate all air lines away from steam pipes or heat producing areas.

Fine finishes depend upon an adequate, trouble-free supply of air. Select the size compressor best suited to your operations, install it properly, connect it to an air line of the correct size and observe the results in maximum service with minimum upkeep and operating expenses.

You Know it's the Best

IN AIR COMPRESSORS!

Supplying air continuously all day long, day after day, in the volume required for spray finishing calls for a compressor of more than average stamina and endurance. Actually, the job is one of the toughest any compressor can be called upon to do.

Because DeVilbiss compressors have been designed specifically for the strenuous service of spray painting many exclusive advantages are offered. A combination of features not found elsewhere are the result of the specialized engineering that underlies every detail of these cool running, highly efficient, precision built compressors. The net result is a long lasting, sound equipment investment. Furthermore, it pays dividends by delivering more air per kilowatt-hour of electric current consumed. And just as industrial finishers have found time and time again in DeVilbiss spray equipment, this is another instance where *the economy of quality equipment* pays off.

DeVilbiss compressors were designed to do one job best . . . supplying air for finishing. Bulletin CK-101 will give you all the details on the 7½, 10 and 15 h.p., 4 cylinder "V" type models. Catalog CK covers other types ranging from 1 h.p. up to 10 h.p. capacity. Phone your local DeVilbiss Sales and Service Engineer, or write for your copy to—

THE DEVILBISS COMPANY • Toledo 1, Ohio

Canadian Plant: WINDSOR, ONTARIO

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means QUALITY in all four

Spray Equipment

Air Compressors

Exhaust Systems

Hose and Connections

HOW WE FINISH *Compacts*

Plant Manager of Pilcher Manufacturing Company tells how ladies' compacts are automatically buffed; also how they are cleaned in solvents, dipped in clear lacquer and baked in a controlled electric oven.

By A. A. Oertel

IN FINISHING metal compacts, perhaps more careful handling is required than for many other products; reason for this is the highly polished surfaces of the metal cases. Also, please bear in mind that many of these cases—square and rectangular—are perfectly flat, and that the entire outside surface, including the edges of the case, must be uniformly finished and protected.

It is not too difficult to obtain this mirror-like surface on the cases, but to retain it without scratches or blemishes through metal cleaning, dip-coating, baking and assembly operations, presents the real problem. I shall explain how we have solved this problem effectively and economically.

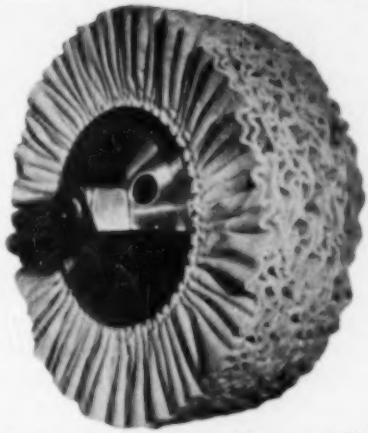
Edges of Square Cases Are Hand Buffed

When the metal cases arrive in the finishing room, the two halves are hinged together with a temporary wire which is later removed on the assembly line to be replaced with the permanent hinge pin. On square or rectangular cases, the first operation is to polish the edges. This is done by placing six cases in a metal holder and hand buffing the exposed edges. Round cases go directly to the automatic buffing machines where both face surfaces and edges are buffed.

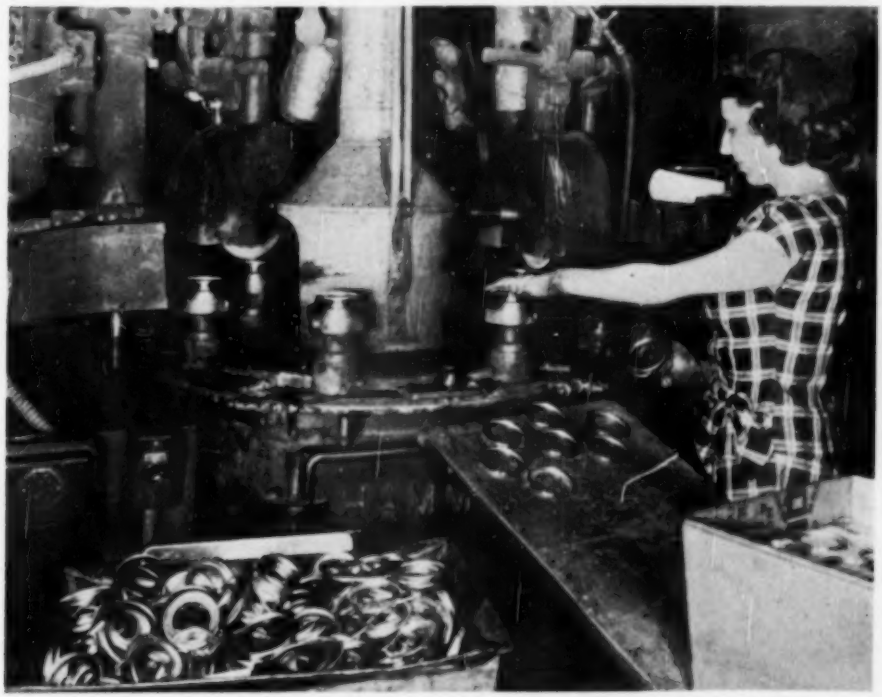
Rotary Automatic Buffer Has Ventilated Wheels

The automatic buffer has six chucks mounted vertically on a revolving table, as shown in one of the accompanying pictures. These chucks have cam-operated expansion jaws which automatically expand to grip the case on the inside and hold it firmly for buffing. During the buffing operation, four chucks are under buffing wheels, while the other two are at the loading and unloading positions.

Each automatic buffer has four buffing wheels. For buffing round cases the machine has two wheels



Close-up of a Jackson airway ventilated buffing wheel, as used on the automatic buffing machine. Photograph courtesy of Jackson Buff Corp., Long Island City, N. Y.



An automatic buffing machine, with revolving table carrying six vertical chucks each of which holds part of a compact case to be buffed by the "top" and "edge" buffing wheels.

for edge buffing. These wheels are positioned so that every part of the surface of a compact is contacted during the buffing operation. The buffing wheels on horizontal arbors (above the chucks which hold the compact cases) operate in a vertical plane by means of synchronized cam-action to exert pressure on the compact case while it is directly under the wheel.

Due to the almost constant pressure contact with the metal being buffed, it is practically necessary to use air-cooled buffing wheels. Each buffing wheel is made up of six individual units, each of which has small metal lugs on the wheel frame to separate the units and permit air to circulate through the wheel to aid in cooling it. The cotton material is cut and sewed on the bias for longer wear; and due to the construction and pleating, an oscillating motion takes place which eliminates the possibility of any straight line scratches.

Buffing Compound Removed in Vapor Degreaser

After they have been buffed, the compact cases are carefully placed between metal holders in trays which hold 100 cases. Next they

Compacts are hand cleaned with brushes and cloths in solvents. The two tanks at left contain filtered lacquer thinner. Notice pump and filters at lower left. Covered cross tank is drain pan. Cleaning is done just before compacts are dip coated in clear lacquer.

new strippers

are available even more powerful than Enthone Regular Enamel Stripper which has been used by industry for the past fifteen years. These new strippers include:

stripper S-15:

For stripping nitrocellulose lacquers.

stripper S-17:

A volatile room temperature stripper for removing heavy coatings from work holders, hooks and production work.

stripper S-19:

A powerful quick evaporating room temperature stripper for clear and pigmented synthetics.

stripper S-45:

A brush-on, thickened spot enamel stripper for synthetics.

stripper P:

A stripper mixed with water to form a clear dispersion that strips alkyd, ureaformaldehyde and melamine synthetic enamels.

stripper S-300:

An emulsion stripper that mixes clearly with water for fast stripping of synthetic enamels from all metals.

stripper WS-70:

A quick evaporating stripper for removing enameled coatings from wire.

Also special strippers for specific problems.

For fifteen years Enthone chemists have specialized in development of strippers for organic finishes. Take advantage of their experience and send samples of your products to them for stripping advice.

go to a 3-stage trichloretheylene vapor degreaser which removes finger marks and all traces of buffing compound. Some cases require a satin finish. This is produced by lightly holding the polished case in contact with a slow moving, soft string wheel. From this point on, cases are moved in flat wood trays; each case is open and its outside surface is up.

Cases Are Hand Cleaned Before Dip Coating

The next operation is hand cleaning the inside as well as the outside surfaces in a lacquer solvent, and placing six or more cases on a special holding rack. This rack is inverted so that the cases pass through constantly filtered lacquer thinner just before the loaded rack moves to the dip coating conveyor.

The viscosity of the special dipping lacquer is such that at a conveyor speed of one foot per minute, coupled with absolutely correct positioning of cases on the rack, we obtain perfect draining, both of the outside and inside surfaces. This complete draining is highly important; otherwise fat edges would develop on each low corner. The viscosity of the material is regularly checked so that it can be maintained at the right level. *(To 42)*

Two conveyorized dip tanks carry inverted racks containing from seven to ten compacts through special dipping lacquer. The secret of successful dipping is proper positioning of product, plus synchronized viscosity and speed of withdrawal.

"It must have special resistance to moisture," said the BullDog Electric people, "It must be tough and it must be a coating that can be baked in either infra-red or other types of ovens."

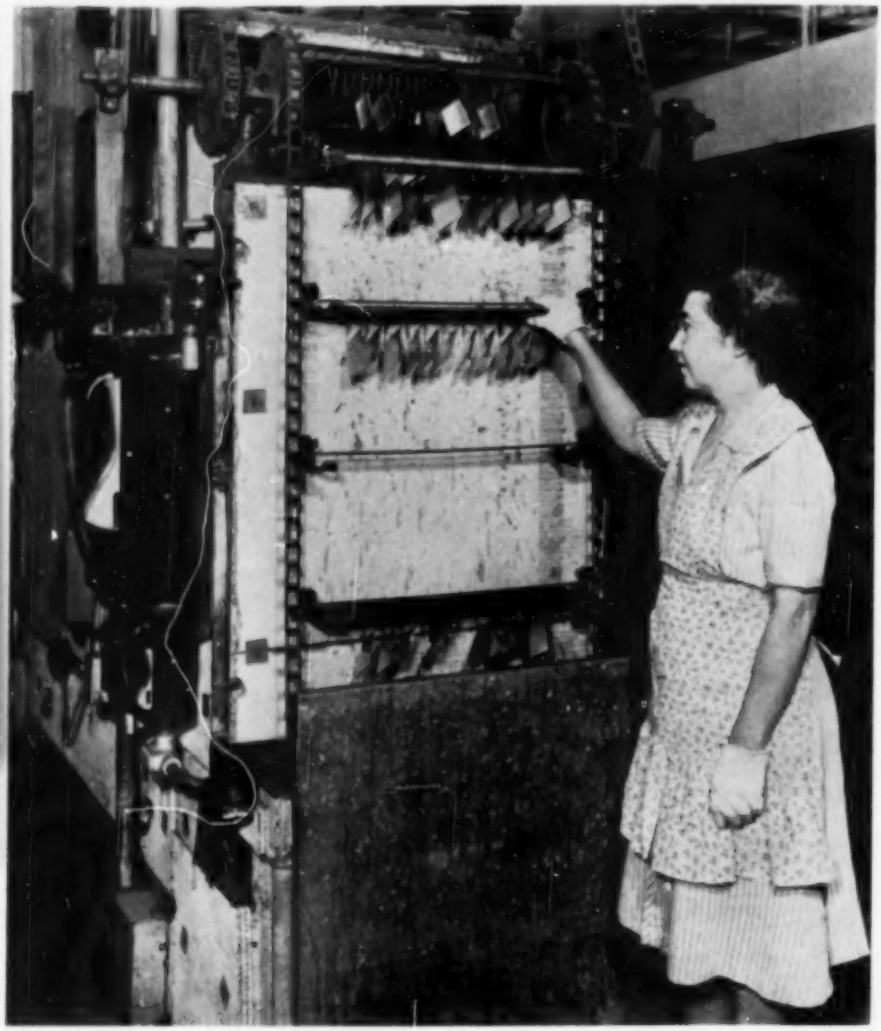
SO . . . A BERRY BROTHERS PRODUCT FILLS THE BILL!

If *you* have a special finishing problem—or if you just want to be sure you're getting the best paint for a particular job—write to . . .

BERRY BROTHERS
Industrial Finishes
Fine Finishes Since *1858*
Detroit, Michigan • Walkerville, Ontario

As the loaded racks leave the drip pans, they are transferred to an oven conveyor which operates in a thermostatically controlled electric oven. Here the finish is baked for ten minutes at 200° F.

Upon removal from the oven, cases are placed in partitioned wood



The finish on compacts is baked in this thermostatically controlled electric oven. Clock control at left turns on power several hours before starting time, and turns it off at quitting time, five days a week. It requires no manual attention.

Here's a way to reduce metal-finishing costs...

Apply the 2-Factor Formula

Applying the *2-Factor Formula* is A-B-C simple: (1) specify *quality* abrasives; (2) use these abrasives *correctly*. As a *practical* easy-to-apply formula, it has no equal for reducing costs and increasing production.

A good way to get quality abrasives is to ask your jobber to supply you with abrasives by CARBORUNDUM. You get belts, sander discs, and other forms that cut clean and fast with minimum pressure...that have balance and smoothness at high speeds...that resist shedding, cracking, loading, glazing. You get more work from each unit. You make fewer stops for belt or disc replacement. Check these end results of quality and you'll find they add up to lower finishing costs.

Your jobber can help you use these abrasive products to finish more pieces per unit at a lower cost per piece. He's well-informed on abrasives and their application. He knows metal finishing. He can suggest ways to cut corners...to speed up the work without sacrificing quality. He'll be glad to consult with you at any time on metal-finishing problems. The Carborundum Company, Niagara Falls, New York.

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CARBORUNDUM

TRADE MARK

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trays, the bottoms of which are covered with felt to protect the finish. Each case is inspected before it is placed in these trays. The partitions in the trays prevent one case from contacting another, thereby removing the possibility of a finished case being scratched.

Pressure sensitive tape, pre-cut to shape and size, is applied to the top and bottom outside surfaces of the cases. This tape remains on the outside surfaces throughout all assembly operations, and is removed for final inspection just before the compacts are packed for shipment. This particular tape leaves no residue of adhesive on the polished surface of the metal. The finishing job involves considerable handling, but the end results make it worthwhile. We have very few rejects.

Operator applying pressure sensitive tape, pre-cut to shape and size, to protect the finish on compacts during assembly.

Roller Coating Laboratory to Solve User's Problems

A laboratory and pre-testing roller-coating department has been established by Gasway Corporation, 6463 N. Ravenswood Ave., Chicago 26, Ill. The need for these facilities has become more apparent as more concerns become interested in the roller coating method of applying paint and lacquer coatings, and as present users seek additional information to solve new problems and to extend the possibility of their roller coating equipment.

A pilot roller coating machine in the department can be adapted to roller coating a wide variety of work submitted by prospective and present users. In this way specific information can be determined in advance as to the type and size of machine best adapted to the work, what accessories or supplies may be needed, the kind of coating materials to use and their viscosity, the probable best rate of production, and various costs that will enter into the picture. In other words, all preliminary experimenting can be conducted in the Gasway Corporation's laboratory. With the facts obtained in this way, users or prospective users will have information which will enable him to determine whether or not roller coating is economically sound for the work they have in mind.

In addition to the laboratory and pilot department, Gasway Corporation has published an interesting and informative booklet on roller coating methods and equipment. Copies of the booklet are free.

Shell Chemical Corp. Opens New Technical Service Laboratory

The opening of a new Technical Service Laboratory at Union, N.J., is announced by Shell Chemical Corp., 50 W. 50th St., New York 20, N.Y. The new laboratory is under the direction of Dr. Donald S. Herr, who previously directed the company's Technical Service Laboratory at Martinez, Calif. Dr. Herr will be assisted by a staff of chemists and technicians, specialists in various fields of industry.

The new Shell Chemical laboratory is equipped with extensive modern facilities for the examination and evaluation of petroleum-derived chemicals in their many industrial uses. Special emphasis, however, will be placed on the surface coating uses of these chemicals, particularly as they apply to use in lacquers and synthetic enamels. Other fields of work will include hydraulic brake fluids and anti-freezes. Investigations will also be conducted on customer problems involving the use of the company's products. The findings of all investigations, except those undertaken on a confidential basis for a particular customer, will be made available to industry.

3 Complete Finishing Systems

COMBINE TO PRODUCE 15 OLIVER TRACTORS PER HOUR

(Production Increased 50% with this Plant Layout)

Designed, Built and Installed by

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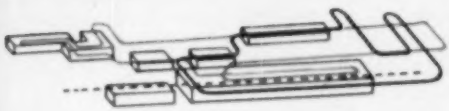
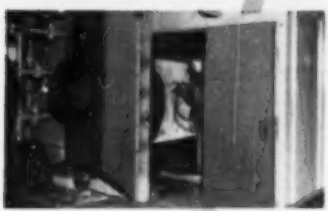




It takes less than one-half minute to spray a wheel or rim in this enclosed water wash spray booth.

Overhead installation of this parts dry-off oven allows for extra working area.

Over and under construction of finish bake ovens relieves factory floor congestion.

1. TRACTOR CHASSIS CONVEYOR (dotted line) travels through spray booths and bake oven.
2. 150 WHEELS, RIMS AND WHEEL WEIGHTS per hour are carried on 702′ Monorail continuous conveyor (black line) through washing, spraying, bake stages.
3. 135 TRACTOR PARTS per hour move on 1016′ Monorail (red line) through wash unit, dry-off oven, spray booth and bake oven.

Minimum handling, conservation of space, lower maintenance and labor costs per unit with more production are the results of this streamlined DESPATCH Finishing System at the tractor plant of The Oliver Corporation, Charles City, Iowa.

A 3-STAGE WASH UNIT for parts and a 2-stage unit for wheels and rims have immersion type gas burners and spray nozzles arranged for complete coverage of all surfaces.

4 WATER WASH SPRAY BOOTHS are enclosed and supplied with heated and filtered outside air from two air make-up systems.

5 DESPATCH CONVECTION HEATED OVENS, one for parts dry-off and two for finish baking are heated with direct gas-fired air heaters. Effective heat seals and oven ventilation are accomplished by axial flow, dual purpose fans located in exhaust plenums.

READY TO SERVE YOU! No matter what your finishing requirements, DESPATCH Engineers are ready to help you achieve higher production and better finishing at lower operating and maintenance costs.

WRITE TODAY for Bulletin 51-E

DESPATCH OVEN COMPANY

MINNEAPOLIS OFFICE: 619 S. E. 8th St.

CHICAGO OFFICE: 7070 N. Clark St.

DESPATCH OVEN COMPANY

Dip-Coating Technique

THERE IS MORE to a quality dip-coating job than merely providing a tank of material and then immersing and withdrawing parts or products. First, the racks or holders must be carefully designed and made so that the parts will be in proper position to be completely coated, and so that all surplus material will drain properly and quickly. Draining should take place over a reasonably small area.

If the dipping operation is conveyorized, special care should be exercised to prevent any bubbles in the material from floating to the exit end of the tank; otherwise, the finish will be damaged through these bubbles clinging to the product as it is lifted from the material. When the bubbles on a coated surface break, the finish becomes specked or spotted.

A slowly revolving paddle wheel, or a series of air jets placed just above the level of material at the exit end of the tank may be used to keep bubbles at the entrance end of the tank where they can do no harm.

The speed of the conveyor should be synchronized with the viscosity of the dipping material; that is to say, the speed at which the product is withdrawn from the material must equal the flow of the material off the product as it emerges. This rule also applies where articles are lifted vertically from material in a tank or container.

It naturally follows that with a high viscosity material, the speed of withdrawal must be slower than it would be for a low viscosity material. If this rule is not followed, the coating will be too heavy, and you may have runs, sags and fat edges. Also it is well to remember that several thin coats are always better than one heavy coat.

Because of the importance of this rule for successful dipping, some form of mechanical operation should be used. If a conveyor is impractical, then either a hydraulic or mechanical dipping machine may be employed. It is almost impossible for any operator to consistantly gauge the speed of withdrawal in a manual operation.

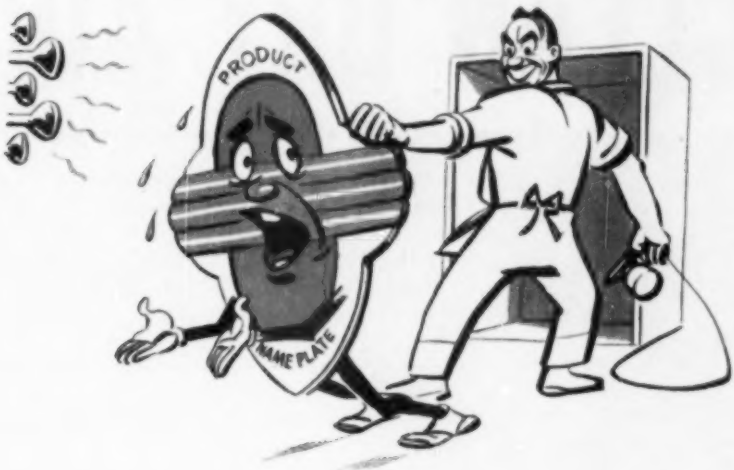
Hercules Powder Co.'s Products at Paint Industries Show

Chlorinated rubber, nitrocellulose, and new and improved synthetic resins—bases for protective coatings of top quality performance—are some of the products which were displayed in Hercules Powder Company's exhibit at the Paint Industries Show in Atlantic City, November 2-5.

The exhibit exemplified the wide variety of chemicals for the paint, varnish, and lacquer industries which have been developed in Hercules research laboratories.

Among the chemicals on display was "Parlon", Hercules chlorinated rubber, which is receiving considerable attention from the paint industry. Chlorinated rubber-based paints can be formulated to have outstanding resistance to acids, alkalis, and other agents which commonly destroy surfaces treated with conventional paints. The chlorinated rubber-based paints can be applied to metal or concrete surfaces and are available in a wide range of colors.

"WHAT! Do I have to go through this again?"



No wonder finishes discolor so often—there are so many factors which can contribute to such a condition. Overbaking, for one.

This was the case with a nameplate manufacturer. In the multicolor enameling of his product, the first coat had to take the bake of a second application, and even that of a *third*. He got plenty of discoloration – plenty of rejects.

Taking on this problem, enterprising Unichrome engineers came up with a special formulation designed to fit *all* the production requirements – and a difficult set of specifications they were indeed. It ended the rejects alright – but what's more, *it cut 25% off former finishing costs!*

Want a fresh slant on *your* problem? Write us.

Remember – a "fresh viewpoint" often works wonders!

UNICHROME

LACQUERS, SYNTHETICS, BAKING ENAMELS

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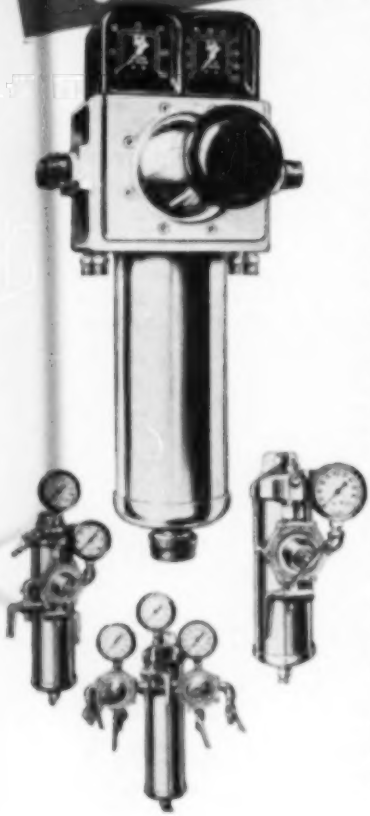
CLEAN DRY AIR

Binks
oil and water extractors



Perfect finishing demands clean, dry air at the right pressure. Foreign substances such as oil, water, dust, rust and other impurities must be removed from the air before it reaches the gun or serious troubles result. Since there is no known method of keeping these impurities out of compressed air lines, the answer is to install a Binks oil and water extractor between the compressor and spray gun.

Binks Model E-75 oil and water extractor meets the ultimate requirements of modern finishing for air-cleaning efficiency and big capacity. It delivers a greater volume—75 cubic feet per minute—of perfectly clean, dry air from which all trace of oil, water or scale have been removed by a combination of gravity, condensation and the highly efficient metal filter that's the heart of the unit. There are no filter packs to buy or renew, no time lost obtaining or replacing them. There is no maintenance cost. The E-75 metal filter is easily cleaned and will last indefinitely. There are no moving parts. The E-75 oil and water extractor drains itself semi-automatically when the air supply shuts down . . . no harm results when operators forget. A manual drain is also provided.

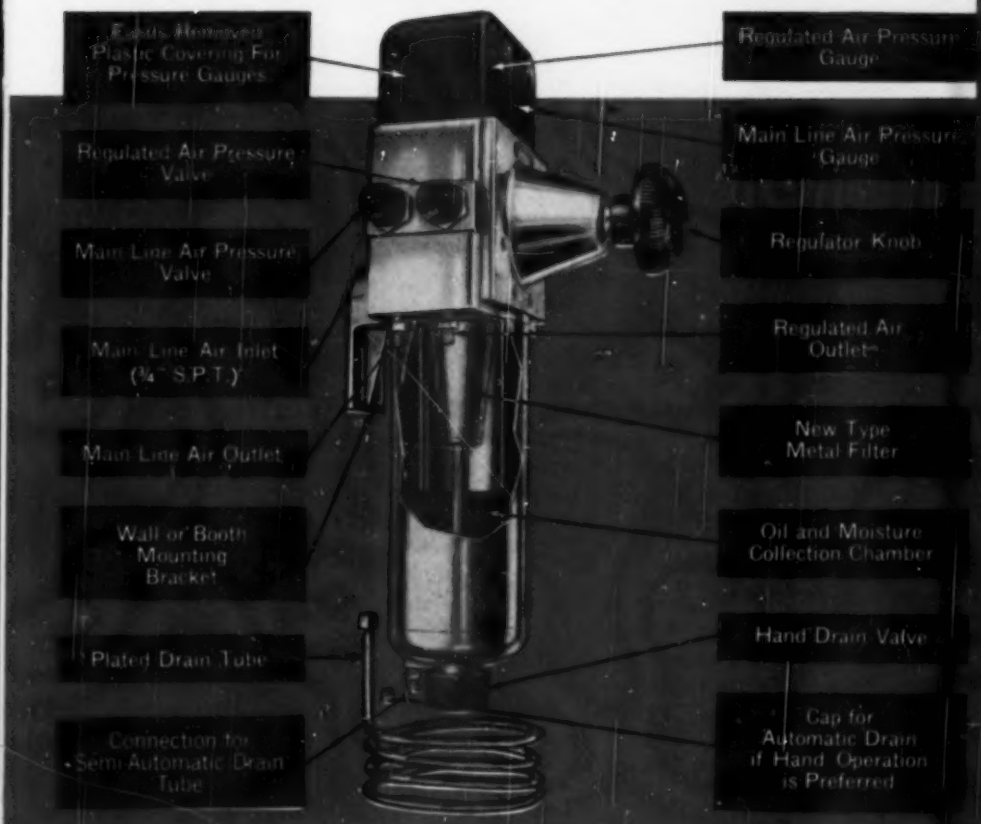
The E-75 oil and water extractor will serve several big production guns, along with dusting and drying facilities, simultaneously, and at full capacity.

A Binks oil and water extractor in your air line is the best—and only—guarantee of quality finishes. It is insurance against laborious, time-consuming, and always unsatisfactory, retouching—or complete rejection.

Write today for your copy of Binks Catalog, which fully describes all types of oil and water extractors as well as the complete Binks line of spray painting and finishing equipment.

In addition to the big-capacity, heavy-duty E-75 oil and water extractor, the Binks line includes units of smaller capacity for handling one or more spray guns.

- **cuts rejects and refinishing**
- **stops customer complaints.**


Easily Removed Plastic Covering For Pressure Gauges
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Main Line Air Inlet (¾" S.P.T.)
Main Line Air Outlet
Wall or Booth Mounting Bracket
Plated Drain Tube
Connection for Semi-Automatic Drain Tube
Regulated Air Pressure Gauge
Main Line Air Pressure Gauge
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New Type Metal Filter
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Cleaning-Painting Setup for Metal Toys

A completely conveyorized set-up that includes two-stage cleaning, dip coating in colors and infra-red oven drying, with transferring at two stations.

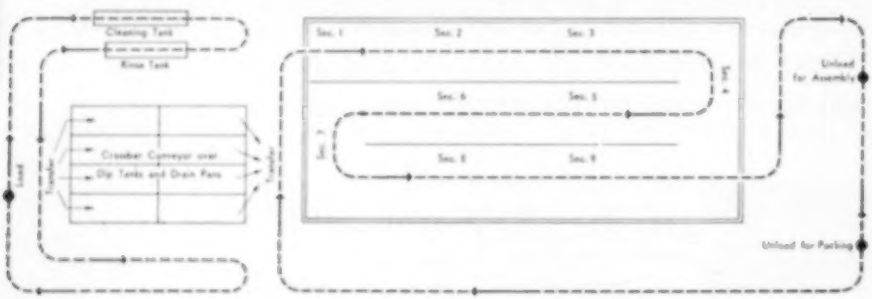
By F. C. Tanessferro

PEOPLE, and this includes the small fry, are attracted to toys mainly for two reasons—styling and the finish. Naturally modern designing is imperative. This, of course, takes into account the toy's utility value from the youngster's standpoint — what it will do or what it represents. The finish must be smooth and durable, for it is only during the first hour or so of possession that the average youngster will use any care with toys. To withstand all of the bangs and knocks, not to mention exposure to all kinds of weather, a baked enamel finish is practically necessary for metal toys.

Metal Toys Cleaned Before Finishing

A reasonably economical and fast finishing set-up, based upon what was planned for one factory, is shown in the accompanying floor plan layout. Such toys as freight and passenger cars, diesel locomotives, trucks, steam shovels, bulldozers and hand-operated ironers, coming from the fabricating department, are hung on the cleaning conveyor. This is a single overhead chain with hangers spaced on 12-in. centers; it travels at a speed of 10-ft. per minute.

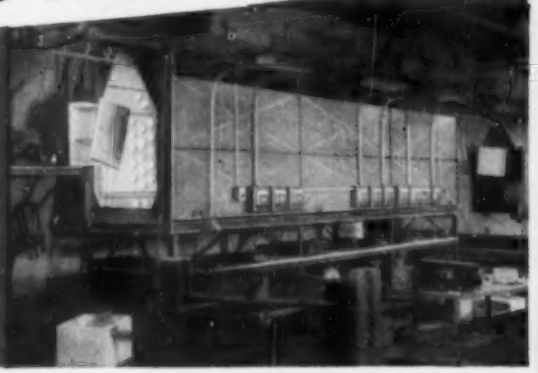
First, the metal articles pass through a cleaning tank which contains a hot alkali solution at 180° F. The overhead conveyor is depressed over the tank to allow its load to be immersed in and drawn



Plan view of conveyor lines, cleaning setup, four dip-coating tanks and the drying ovens.

IDEAL HARD FINISH ACHIEVED

on this enameling job



IN THE NEW, modern Sturgis plant of Marvel Industries, Inc., refrigerators are produced for trailer coaches. Thirteen different cabinet parts are finished with two coats of white enamel . . . an exacting finishing job.

Jensen "dual heat" infra-red ovens, with "nested" lamps, are used in this operation . . . for both dry-off and high-bake.

Marvel chose Jensen for this critical job because Jensen "nested" lamps assure *even* color *over all,* eliminate reject hazards, produce a hard finish that stands up under gruelling trailer coach conditions.

Jensen "dual heat" Infra-Red Ovens are designed to industry's specific needs. Write us about YOUR problem today!

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America's Foremost Designers and Builders of Infra-Red Ovens • Conveyors • Paint Dip Tanks

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In Finishing Production . . . the Future Belongs To Men Who *Plan* For It!

through the cleaning solution. Next, by the same means, the toys are drawn through a hot rinse tank in which water is kept at a heat of 200° F. The articles dry as they travel to the transfer station.

Paint in Four Colors on Same Conveyor

The dip tank is wide and includes drip pans; it is divided into four sections across its width, making really four separate dipping tanks side by side. Each tank is used for a separate color—red, blue, green and yellow. These are the predominating colors. At times some of the tanks are used for white, gray, and black. A crossbar type of conveyor (parallel chains joined or spanned by crossbars) carries the metal toys through the dip tanks and over the drain pans.

As toys are removed from the cleaning conveyor (a single overhead chain) they are suspended by S-shaped wire hooks to the crossbars of the dipping conveyor. Of course, they must be hung on the crossbar in correct sequence so that particular toy or part will receive its coating of the color required.

When a new type of toy is added to the production line, a study is made to determine the proper position for it to be hung on the conveyor to enter and leave the enamel correctly, so that it will drain thoroughly. The drain pans are separated by metal dividers into four pans so that surplus material dripping from toys will flow back into the proper dip tank. The dipping conveyor operates at a speed of 2½-ft. per minute.

Paint is Baked in Sectional Infra-Red Oven

As the toys reach the far end of the drip pans, they are removed from the dip coating conveyor by the S-hooks which hold them and are hung by the same hooks to the baking canveyor which is a single overhead chain with hangers spaced on 12-in. centers, and operating at a speed of 10-ft. per minute.

Dip-coated toys enter a 9-section infra-red oven where the paint is baked for 10-minutes at 275° F. This same conveyor carries the toys, after baking, to assembly lines where those that have to be assembled are removed for that work. Other toys, comprising complete units in themselves, continue on to the packing department.

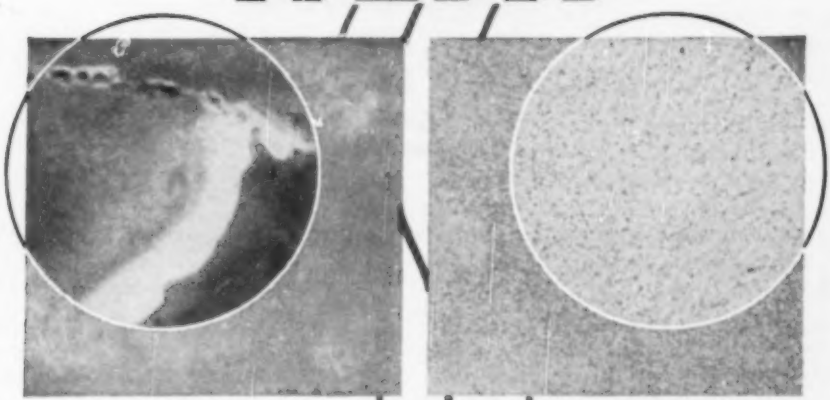
The reason for the sectional infra-red oven is the physical layout of the plant. Toys travel a total of 102 lineal feet inside the oven. The oven occupies a floor space of about 16-ft. wide by 33-ft. long.

I am presenting this setup, not because I believe that it is ideal, but rather to offer something as a basis for possible comparison to what others may actually have in operation, or what they may be planning for in the future.

UNLESS manufacturing equipment is maintained at its highest operating efficiency, production schedules suffer, delivery promises are broken and costs of manufacture increase. Positive control of maintenance activities is necessary to avoid needless shut-downs, to prolong the life and productivity of your equipment, and to save money on repairs and replacements. Such control is achieved by establishing periodic, scientifically scheduled inspections.

MICO SILICONE-BASE FINISH SOLVES YOUR FINISHING PROBLEM WHEREVER THERE IS

HEAT



ORDINARY FILM—Total breakdown at 1000°F) MICO—Film integrity unaffected after 1000 hrs.

In this dramatic test by a nationally known laboratory the steel plate at the left was coated with ordinary heat-resisting material, while the one at the right was coated with MICO Aluminum. Both were then subjected to 1000° heat. As the unretouched enlarged sections show, the ordinary film completely broke down after only one hour. But MICO held up without signs of deterioration and was still going strong *after 1000 hours!* What further proof of MICO'S amazing durability! MICO can protect YOUR product, too, *wherever there is heat!* Investigate MICO today!

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THE TECHNIQUE OF FINISHING SMALL WOOD TURNINGS, ETC., BY *Tumbling*

By Earle G. Sederquest
Service and Sales Manager
Burgess, Fobes Company*

From Portland, Maine, comes this article which reveals so much practical and detailed information about the technique of cleaning, smoothing, filling and finishing small wood turnings by the tumbling process.

THE APPLICATION of paint, varnish, lacquer or enamel coatings by tumbling is an economical method of finishing large quantities of small items in bulk. The correct technique is to use several thin coats. Dipping is just the opposite—one or two heavy coats—sometimes on top of a tumbled first coat or filler. A tumbling enamel has a short quick set-up, whereas a dipping enamel has a lot of flow. A universal formula for a tumbling enamel, taking in the best features of each, is ideal in most cases.

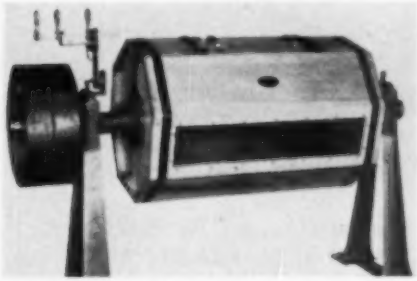
A common type of tumbling equipment for small wood turnings, etc., is an empty shellac or molasses barrel** mounted waist high from the floor, with a shaft running directly through the center of the heads. Better, however, is to mount the barrel "catty-cornered" so it turns with a weaving effect. An access opening—say 8 or 10-in. wide by about 12-in. long or longer—should be sawed in the side. This opening must be fitted with a door which can be fastened in closed position while the drum is rotating, and opened for filling and emptying the barrel. A large drive pulley with the belt direct from a shaft above (throw off by hand) to gear the revolutions down to 25 or 30 per minute is usually about right.

*Paint and varnish manufacturers.

**Complete tumbling barrels with drive shaft and pulley, and made of wood or metal, can be purchased from tumbling barrel manufacturers. While some barrels are cylindrical (with round ends) others are hexagon or octagon shape. Still others are designed to operate in an up-titled position, with the top end open and no drive shaft inside the container.—Editor.

How Much to Put In; How Fast to Run Barrel

The tumbling barrel should be filled not more than one-half to five-eighths full of small turnings each time for each coat of finishing material. The prepared liquid coating material (for coating the items to be tumbled) should be carefully poured in sparingly, distributing it over the leveled contents of the barrel from end to end.



An octagon tumbling barrel with one of its eight sides a removable panel of wire mesh and another side an access door.

Tumbling is a process of having some small articles wet with paint, touching others in the load and continuing this distribution indefinitely as the barrel is rotated. Too much speed (with noise) will skip this momentary contact, causing incomplete coverage. It has been found that a speed of approximately 28 revolutions per minute makes for best production. Large, professional, open-end, cornucopia-shaped tipping tumblers, or open-end removable drums or "ash cans" mounted on a slant on a revolving shaft are also good. With these, it is possible, for special work, to apply the enamel with a low-pressure spray gun as the parts cascade by, giving an immediate start to a thin uniform distribution, whereas a heavier pile-up of enamel on flat-faced turnings might cause later sticking.

Dump Contents of Barrel Into Trays to Dry

Having the tumbler waist high makes it easy to dump its contents into trays underneath for drying. A convenient size for trays is about 2-ft. wide by 3-ft. long, with wood or metal sides 4 to 6-in. high. Use ¼ or ⅜-in. wire mesh on the bottoms; this will let air pass up through the coated turnings, even though the trays are filled nearly two-thirds full. You might want to shake the trays once while their contents are drying to prevent any tendency to stick, although too much shaking may increase the number of contact marks. If the enamel has been applied sparingly these contact marks—where one piece lies against the other in drying—will not be readily apparent to the eye. Under such conditions trays should remain undisturbed until the coated contents are dry.

Tumbling affords economy in the amount of enamel, varnish, stain or filler used. A measured amount is usually doused into the barrel of turnings from a convenient dipper or cup, after the material has been mixed in the proper proportions with thinner. Too much of the mix thrown in will make a gummy mess; it will waste material and will create bad sticking together when the turnings are drying in trays. It will also increase the visibility of craters or contact marks—and thick coats will look muddy or dull. *(To page 56)*

Hold back on the amount of enamel used, or wash out with a little extra thinner thrown in while the wet run is still on, if you suspect that too much enamel has been poured over the load. If too much enamel has been used and if it has dried, you may have to pumice or grind off some of the finish and recoat. If too little enamel has been used, let it go through to completion and put on an extra coat later.

Technique of Smoothing Turnings with Pumice

Pumicing—which is usually done in tumbling barrels that have wire mesh trap doors—is often necessary to produce good smooth turnings at the start. This work should be in another room on account of the dust and noise it makes. Fill a clean, mounted barrel with raw turnings about two-thirds full, plus six or eight egg-size lumps of pumice or, if no pumice is available, tear up a few sheets of coarse sandpaper and throw them into the barrel.

The tumbling action (with pumice or sandpaper) will smooth wood turnings and even fill the wood a little, but be careful to avoid running the barrel more than one-half hour or so, as too much tumbling may grind off the detail on sharply-cut turnings. The extra smooth surface will go a long way toward producing a better finishing job, as enamel or paint does not always bridge over all the blemishes but has more of a tendency to follow every hill and dale and even highlight some of the inequalities. Smoothness in a turning or article to be enameled or finished is a necessity. If for some reason it is not possible or convenient to first smooth the turnings with pumice or sandpaper, a long run with the first filler coat, until it is completely dry, will smooth out the parts quite effectively.

Two closed horizontal tumbling barrels, each made of hardwood, one hexagon, one round.

Tumble-Coated Items Can Be Air-Dried or Baked

Tumbling enamels can be either air-dried or baked. Baking or force drying often allows two coats to be applied in one day, whereas air-drying should go from one day to the next. There may be something favorable said for the final hardness and brilliance of the finish on an article that has been baked, but anyone not equipped with baking ovens needs not worry too much. The air-drying finishes, when finally bone hard, will compare favorably with a baked finish.

Air-drying enamels may be baked, if desired, or hurried up with forced heat, the latter usually obtained from the new fan-type garage heaters, giving hot circulated air at around 100° F. Enamels containing wax (non-stick and extra smooth-finished feel) can only be dried by baking, but the bak-

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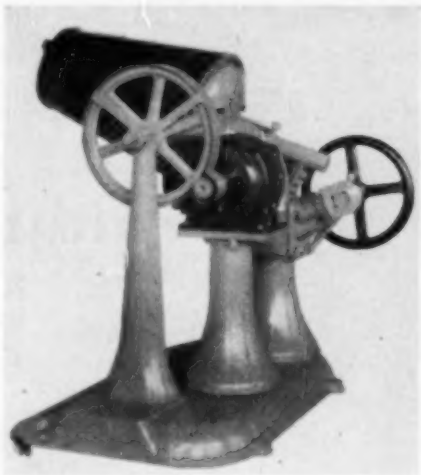
ing temperature can range from a low of 130° to 150° F. up to as much as 200° to 225° F., or short of the point where the enamel might blister or the wood might scorch.

Wax-content enamels, which dry by baking only, are excellent for flat-faced turnings where sticking is expected because they dry face to face, particularly if there is no opportunity to give them any "snap" or "crack" to "break" them apart. True, too heavy a coat of wax-contained enamel will also stick; the skill and judgment of the paint room man comes in here to gauge all of these conditions just right.

Often a non-stick material which can be obtained separately is added to the mix (add one-half pint to a gallon of enamel) for especially troublesome jobs. Besides the freedom from sticking, the waxy smoothness of a wax-contained tumbling enamel is quite desirable in most cases where no painting or hand decorating is to follow. Regular enamels and the new synthetic enamels (extra-hard, extra-brilliant, extra fast-drying) may be had wax-contained for those who bake or dry with forced heat.

Non-Toxic Finishes for Children's Toys

Toy parts or complete children's toy manufacturing operations are protected quite definitely as to quality of finish by specifying that the tumbling (or dipping, brushing or spraying) enamels shall be non-toxic (non-poisonous or lead-free) all of which indicates that there must be no appreciable content of injurious pigments or materials in the paint formula to reach children's mouths. Lead, cadmium, antimony, copper, mercury, chromium, or arsenic can be present only in very minute quantity if at all, with lead getting the most attention because it is probably the most commonly known paint pigment.



A compact motor-driven all-metal tumbling barrel that can be tilted up for filling and rotation, and tilted down for emptying. Where this one is smaller at the open end and has a cover, others are larger at the open end and have no cover.

Lead is definitely left out of any non-toxic enamel, and cadmium colors should not be used. New laws have turned the limelight on this feature of paint making and paint manufacturers are entirely conversant with the restrictions required. There is no depreciation in the quality of the resultant tumbling enamels or the results obtained in the finishing room, and the cost of the enamels is but little more in most cases. *(To page 60)*

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Industrial Finishes
that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

FOR APPLICATION BY ALL METHODS

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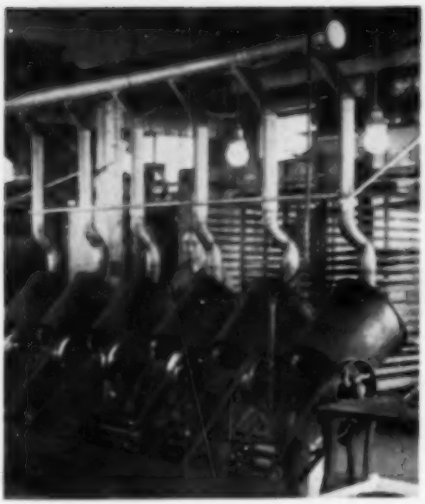

A row of tilted tumbling barrels, each with an exhaust pipe extending into the open end to remove lacquer fumes.

Apply Three or Four Coats to Produce Good Finish

Usually three coats are sufficient in tumble finishing, wood articles, except with white or yellow which may go to four. Also, a non-toxic specification in yellow reduces the opacity, and if the coated articles are for children's toys this particular color may require more than four coats. Much can be accomplished by flooding the first coat, either with filler, or filler plus enamel (enamel added to color the filler) or with the enamel itself plus a suitable amount of thinner, as it will get into the grooves or recesses in the turnings and color everything. There is little danger of sticking on the first coat, as practically all of the material will sink into the wood or any porous article and give color hiding to those parts of the turnings which the following sparingly applied coats of enamel may not touch.

Procedure to Follow in Tumbling First Coat

Into the approximately 55-gallon tumbling barrel you have, put your smooth clean turnings (no sawdust or dirt). Be sure to have them free of pumice dust if you have pumiced them. Fill the barrel about one-half or five-eighths full and douse in a mix of about a quart of enamel plus one-half pint of thinner (VMP naphtha, white gasoline, mineral spirits, or turpentine). Fasten the door and run about ten minutes. Turnings containing grooves, instead of being completely round like balls, may require flooding with a little more thinner and they may need a somewhat longer run to carry enamel into the grooves.

Sometimes deeply recessed turnings will need the addition of several handfulls of small chips or beads to act as "carriers" to convey the enamel into all points. These "carriers" can be sifted out later and used over and over again. No particular harm can be done by using a little too much enamel on this first coat. If not enough enamel for sufficient coverage has been used, the run may be stopped and the barrel opened to add more enamel. This is the only coat where this procedure (adding material) may be used (except in the case of shellac) as on all other coats, if insufficient material was poured in, the run should be completed as started and a coat added later.

Tumbling enamel operators differ about using filler for the first coat. Filler is cheaper than enamel and

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Be sure YOUR solvents also offer these advantages:

1. **High solids content**
2. **Freedom from cold check problems**
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POWERFUL KETONE Solvents permit the use of more low-cost diluent, without changing quality of your product.

Have you heard the *full* story on the cost-cutting advantages of Ketone Solvents? Call your Shell Chemical Representative and have him point out the basic factors that will enable you to profit by the competitive advantage of Ketone formulations.

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it does thoroughly fill and seal wood and all porous surfaces, and it gives a good foundation for following coats of any paint product. Although filler is a neutral shade, you can add enough enamel to start it toward the color you are going to use. Of course, some finishers prefer to use the enamel direct on the first coat, getting all the color at once.

If filler is used, it should be in the same quantity and with the same thinning as mentioned for the first coat of enamel, plus some of the enamel to tint it if desired. If a clear finish, such as a varnish or a varnish stain, is to follow, or if a penetrating oil stain to color the wood has been applied first, use a clear filler, not a pigmented one.

When and How to Tumble Second Coat

The trays full of turnings — which have been subjected to overnight air-drying or perhaps to a shorter forced heat drying, or even to a 150° to 180° F. baking for approximately two hours — should now be dumped back into the barrel for the usual five-eighths fill. Mix 1¼ pints of enamel with ¼ pint of thinner and douse it into the barrel over the turnings with the usual sweeping motion. For the quantity of pieces in the barrel this may seem like an unbelievably small amount of paint, but six minutes of running should show a wet coat over all articles in the barrel, and that is sufficient. Once they are all covered there is no object in further tumbling; too much running will grind off detail and possibly some of the finish you are so carefully putting on.

Dump the coated turnings out again into the trays to dry. If insufficient enamel has been used to coat them, be resigned to putting on an additional coat later. If too much enamel has been used, the coated articles will appear gummy, but the proper or just the right amount of application will begin to show the gloss you are looking for. Occasionally, on some types of work, these two coats may be enough; here the skill and judgment of the paint room man will begin to develop results.

Third Coat Is Often the Final Coat

In most cases the third coat will be the final one. A short pint of enamel without thinning, or two-thirds of a pint of enamel plus a little clear tumbling varnish, should color and gloss them up in fine shape. Five minutes of running should cover everything. This lot comes out into the trays for drying in the usual manner and by this time you should see no trace of wood grain or any of the original coating material—only the gloss enamel color, smooth and firm. This third coat must be handled sparingly (as to paint) to prevent any contact marks from showing. When dry, this third coat should not only have eliminated all surface inequalities but it should be of metallic hardness, giving a nice click when pieces are struck together.

Bear in mind, however, that a coating of enamel will not entirely make up for rough or poor turnings, or bad quality of wood, turning blemishes, etc. There must be a good start with smooth turnings. Lighter colors may need another

(Continued on page 66)

SAND BY AIR IN STRAIGHT LINES...

Get a Better Job Faster with this Sundstrand Opposed Pad Sander

● Here's your sander for production or maintenance work on wood, metal, plastic or composition. It's a sturdy air operated machine — easy to handle because of vibration-free action.

You'll save 50% to 70% on production sanding — wet or dry.

Pads reciprocate in a straight line and in opposite directions — grain structure can be followed easily, producing finer final finish.

If your work includes sanding of wood, metal or composition on production or maintenance work, write for free complete bulletins. Ask for bulletin IF-47.

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ROCKFORD, ILLINOIS, U.S.A.

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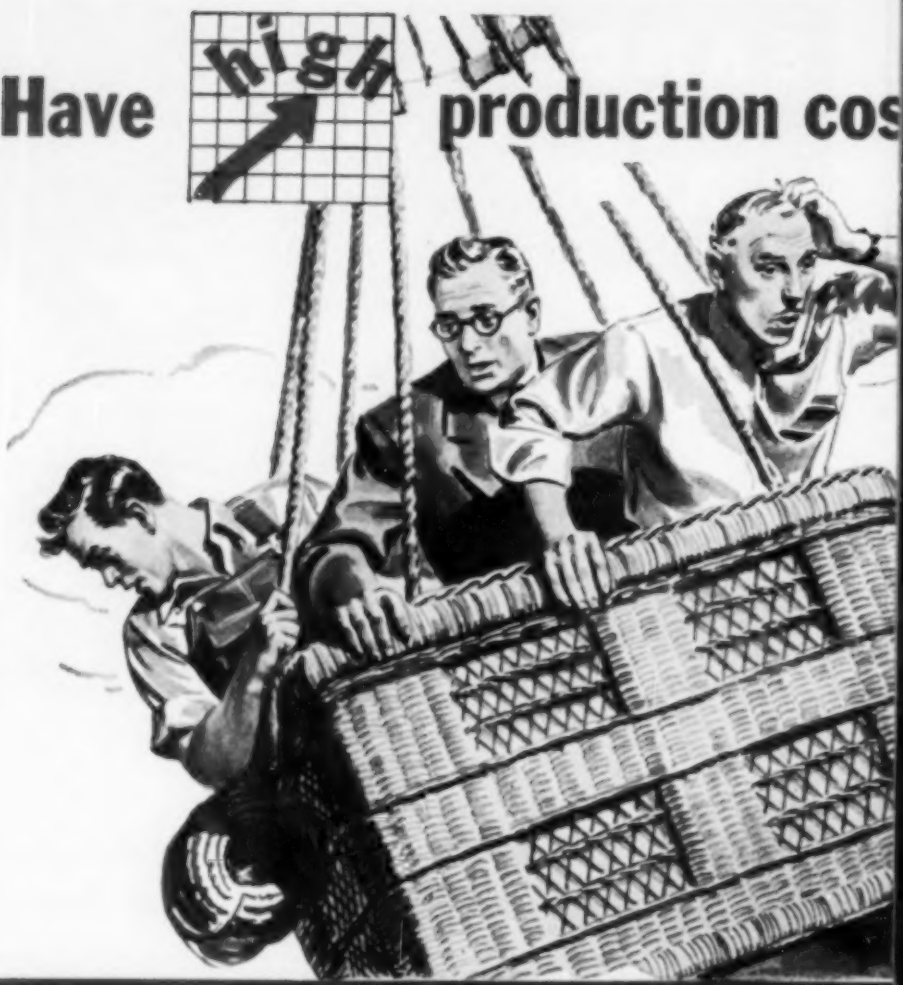
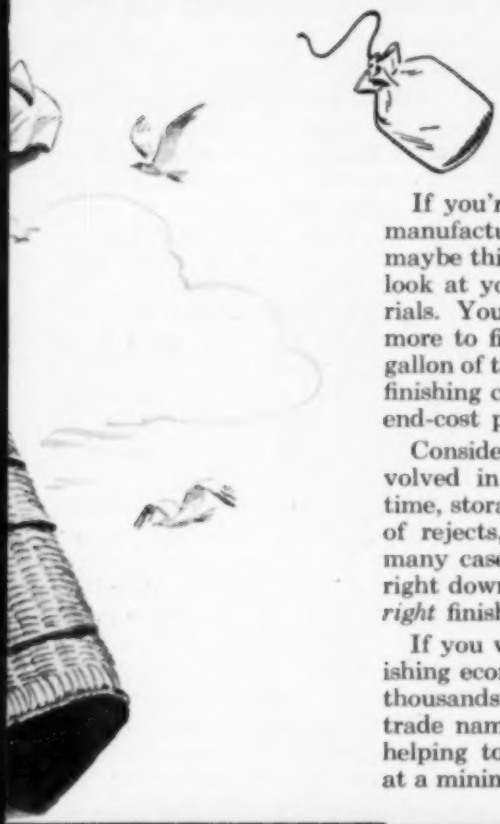


FOREMEN, SUPERVISORS, EXECUTIVE
problem involving costs, performance
"bug". . . write E. I. du Pont de Nem
Division, Wilmington 98, Delaware.

DEPEND ON DU PONT FOR BET

s got you up in the air?



PREPOSTEROUS PLIGHT? Of course it is. But today's sky-high costs have a good many production men *feeling* as though they're taking a balloon ride.

If you're looking for a way to get *your* manufacturing costs back down to earth, maybe this is the time to take a long, hard look at your finishing methods and materials. You'll discover that there is a lot more to finishing costs than the price per gallon of the finish you use . . . that, in fact, finishing costs play a big part in your *total* end-cost picture.

Consider individually the factors involved in your finishing process—drying time, storage space, labor costs, percentage of rejects, and packaging operations. In many cases, these "costs" can be reduced right down the line through the use of the *right* finish, *correctly* applied.

If you want expert help in effecting finishing economies, call on Du Pont. Today, thousands of pre-tested formulas under the trade names of "Duco" and "Dulux" are helping to keep manufacturers' end costs at a minimum.

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coat. A final extra coat of clear gloss varnish may be advisable for polish, or it may be that the final coat is specified as semi-gloss or rubberoid, which would be handled along the same lines.

Clear Tumbling Varnish Used to Give Gloss

Clear tumbling varnish may be used in three ways to gloss up the last coat of color. Usually it is applied for extra brilliancy or to give a no-mar surface protection over some rather delicate color. It may be used as a mixing varnish to add in small amounts to the enamel to gain gloss and flow or, as is most common, to produce a complete finish from first to last for a transparent varnished finish. These varnished jobs may also use filler for the first coat if desired, but it should be a transparent filler; or if the wood is to be stained or tinted, the first coat will be a tumbling oil-or-varnish stain which will color the wood but still show the grain.

Shellac and Wax Finishes; Protecting Packed Products

Clear finish tumblings can also be done with orange or white shellac. In this case the materials in the barrel can be run until dry; the barrel can be opened and more shellac can be added from time to time. Use a little alcohol as thinner to smooth out the shellac coating. Since shellac dries by evaporation of its alcohol, a screen for a trap door in the barrel instead of the solid door would be preferable. In addition to these clear finishes, sometimes articles are also finished in wax, in which case lumps of wax are thrown in the barrel for a long run for smoothness and polish. A clean shellac barrel can be used for this purpose.

Occasionally turnings packed in bags or boxes for shipment may scratch against each other and become marred. A common practice is to spray the turnings at intervals, as they are being packed, using an insect sprayer and commercial olive oil or a high grade paraffin oil. Most of the tumbling enamels now used for wood turnings are "no-mar", particularly the higher priced synthetic tumbling enamels, so the procedure of oil spraying is not used as much as formerly.

The quantity of tumbling enamel needed to coat a specified number of small wood turnings may vary somewhat, but it will be definitely less than by any of the other methods of applying paint. The accompanying table shows a reasonably close estimate for a normal 3-coat tumbling process on top of raw wood turnings or turnings which have been pumiced (smoothed first by being tumbled with pumice).

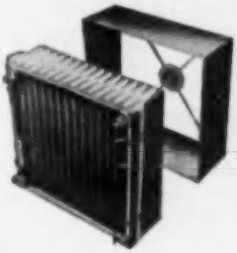
If turnings have already been tumbled in filler and only two coats of finish are needed, reduce the amounts given in the table. On

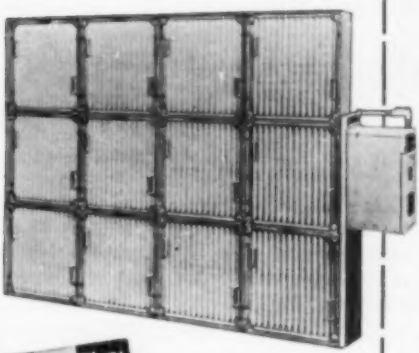
Approximate quantity of finishing materials required to coat certain small wood products.

Round ¾-in. balls	five gallons of enamel will finish	100,000
Round ⅞-in. balls	five gallons of enamel will finish	75,000
Round 1-in. balls	five gallons of enamel will finish	60,000
Handles ¾ x ¾ x 3-in.	five gallons of enamel will finish	40,000

The quantity of thinner required for any of the above will be one gallon.

A new filter for air cleaning jobs that demand something better





READ ALL ABOUT IT!

New dry-type electronic air filter delivers high cleaning efficiency without aid of ionizer. Complete information contained in Bulletin 257. Write for it!

**Airmat is the trade-mark (Reg. U. S. Pat. Off.) of the American Air Filter Company, Inc., for various air filters, dust collectors, and filtering media.*

New Electro-PL offers intermediate cleaning efficiency at lower first cost

THE new AAF Electro-PL filter is designed for those applications requiring better than normal air cleaning but not justifying the higher cost of super-clean air.

This dry-type electronic air filter averages 60% efficient by the Discoloration Method of Testing without the aid of an ionizing unit. Filtering media consists of Airmat* paper whose inherently high cleaning efficiency is almost doubled under electrostatic charge.

Elimination of ionizing unit assures a lower first cost, reduces power consumption and makes for simplified installation and maintenance. And with the Electro-PL on the job you enjoy positive protection at all times. If the electronic action should become inoperative, the air will continue to be filtered efficiently by the Airmat paper.

Intermediate efficiency with positive around-the-clock protection, they're yours for the first time in the Electro-PL at a pocketbook pleasing price. See your local AAF representative for complete details or write direct to:

AMERICAN AIR FILTER COMPANY, INC.
210 Central Avenue, Louisville 8, Ky.
In Canada: Darling Bros., Ltd., Montreal, P.Q.

AAF
AIR FILTERS
AND DUST CONTROL EQUIPMENT

white and yellow color finishes, figure one more coat. These changes will not perceptibly affect the schedule given in the table, as paint products are quite flexible.

The paint manufacturer is indebted to the interested and ingenious paint room men who are constantly applying their experience toward getting improved results with the tumbling method of finish application. Although many ways and means of using tumbling enamels are quite individual and vary considerably with different plants, the goal is to produce a finish equal to or superior to any other process of handling paint, and certain fundamental rules appear throughout for general use and consideration by the men who last handle the turnings and make them look "worth the money."

Use Tack Rags for Perfect Cleaning

USING TACK RAGS to remove scattered specks of dust and foreign particles from a surface just before the application of finishing materials may be compared to cleaning a rug or carpet with a vacuum sweeper. In both cases the dust particles are taken up and confined; they are not spread into the air. To use ordinary wiping rags only serves to agitate the dust and cause it to circulate around the room where it settles on other products, or on floors where it is constantly agitated by foot traffic.

These rags are of suitable, convenient working size, and are packed in individual, oiled-paper, air and moisture proof envelopes. They should be kept in the envelopes when not in use so that they will stay clean and retain their tackiness. The useful life of a tack rag depends largely upon how much dust there is on the surface of the products on which it is used.

Really the tack rag is intended primarily to pick up scattered particles or specks of dust so as to make the surface 100% clean and smooth. Heavy films of dust should be picked up with an industrial vacuum cleaner; then follow with a tack rag.

One manufacturer of aluminum refrigerator pans, which receive a white finish, has a very small amount of dust. A foreman in this plant reports that one tack rag will clean 834-sq.ft. of surface before it is thrown away. Even then it is not entirely saturated with dust.

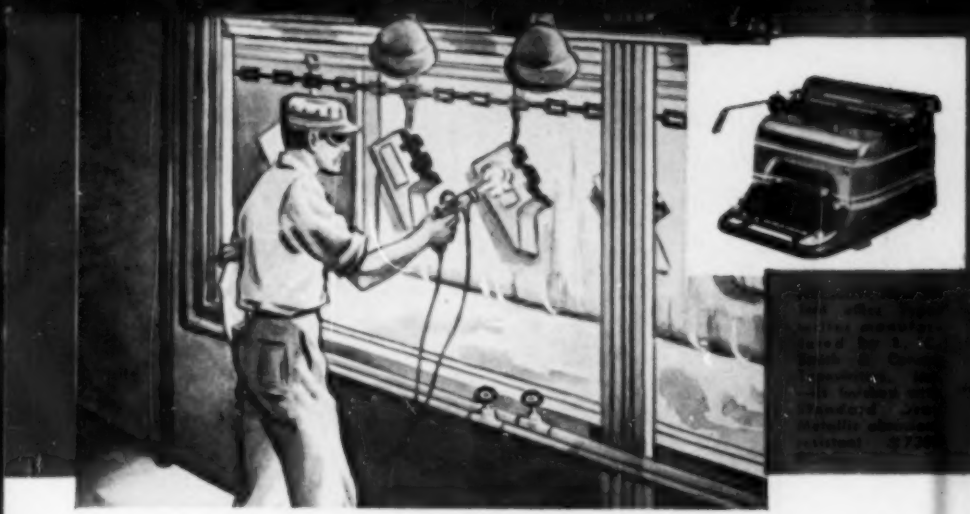
It is better to discard a tack rag before its useful life is completely gone than it is to use it up to the last possible minute and run the risk of having some rejects. On any product, the cost of a tack rag cannot be compared to the labor and material used in stripping and refinishing the piece, not to mention the loss in production.

Of course the square foot area per rag will be reduced in direct ratio as dust conditions are increased. An experienced tack rag operator can determine by the "feel" or pull of the rag as it passes over the surface when it should be discarded. It logically follows that as the rag picks up dust, the pull will be reduced. Each rag may be folded for more convenient handling and may be used on both sides.

On account of fire hazard, all discarded tack rags should be thrown into a closed-top metal container, and burned outside the plant after each shift, or at the end of a work day.

Course in Paint Manufacture

A course in paint technology has been started at Los Angeles City College, Chemistry Dept., 855 N. Vermont Ave., Los Angeles 27, Calif.



Rejects and Refinishings *Cut Almost* 30%

L. C. SMITH & CORONA TYPEWRITERS, INC. DISCOVERS AN ATTRACTIVE FINISH THAT'S REALLY MAR-PROOF

PROBLEM: Scratches and abrasion marks occurring on the assembly line and in shipping, caused too many costly rejections—time-consuming refinishing.

SOLUTION: After tests, L. C. Smith Sales and Engineering Departments approved Standard Varnish Work's gray metallic #7302 finish, saying it was the best metallic finish for maximum mar-resistance, plus real eye-appeal.

TYPICAL APPLICATIONS: All types of business machines, office furniture and electrical, heating and laboratory equipment. Sprays on readily. Bakes thoroughly at 250° F. in 75 minutes.

Thousands of formulae on hand in our files to solve your finishing problems. Extensive laboratory facilities and large technical staff ready to develop and test finishes on your products. Write today for free Technical Data Sheet on our Gray Metallic #7302 Finish. Or, send your products to us for finish specification and testing.

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ENGINEERS OF FINE INDUSTRIAL FINISHES SINCE 1870

NEW YORK LINDEN, N. J. CHICAGO

STAINING

By Wm. B. Leil

HAVE YOU ever tried to get a clean shave with a dull razor, or saw a piece of lumber with a dull hand saw that wouldn't cut. You cannot do a satisfactory job without proper tools and materials. To the finisher who has to turn out a quality product, the staining operation is even more important. Why is staining so important in the finishing process? Briefly, because it does the following:

1) Gives color to the raw wood.
2) Highlights the natural beauty of the wood and its grain design.
3) Gives depth to the final finishing operations.
4) Covers up defects in the wood.

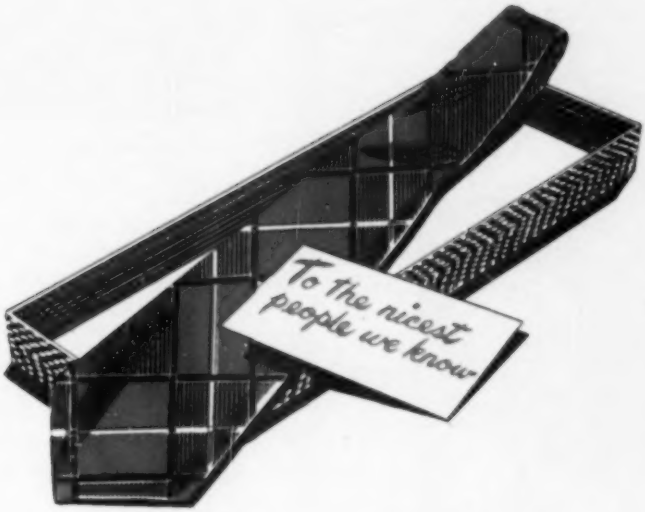
Many types of stains are in use today; some are tailor made for specific purposes. To name a few, we have water stains, oil stains, non-grain-raising (NGR) stains, wax stains and varnish stains. Some wood finishers mix or prepare their own stains, but the most popular practice is to use a stain that is bought ready-prepared, so the finisher only needs to add the vehicle or mixer.

Dipping, Spraying, Brushing . . . When Why and How

The three cheif methods of applying stain to wood are by dipping, spraying and brushing. [In some factories it is flowed on with a hose.] Which one to use depends upon the items or surfaces to be stained, and also on certain other conditions.

Where the finisher is working with a lot of small products and when fast production is essential, dip staining may be desirable, or permissable. The product is dipped in a tank of stain, placed on a drainboard and then wiped. There are ready mixed stains on the market which require little or no wiping and which can be air dried in 45 minutes to one hour.

Spraying stain, of course, calls for the use of spray equipment—and there is some loss in overspray—but the operation is fast and effective. This method of staining is recommended for the more expensive merchandise which requires more skill and care in workmanship. *(Continued on page 73)*



We dedicate this our tenth anniversary to you — our friends who have made it possible for us to grow and prosper in the wood and metal finishing business.

Ben Robertson Jr.
PRESIDENT

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1315 W. Kentucky St. • Louisville, Ky.

All's Well That's Finished Well!

A sure way to obtain a fine wood finish is through the use of the new CTA (*Controlled Temperature Application*) Zaponite* Lacquers.

With a single coat of CTA Zaponite Wood Lacquer over a coat of Zaponite Sealer, you get a finish equal to that of the normal three-coat system. This adds up to savings of as much as 25% in material and labor costs.

Learn more about this money-saving wood finish—send for the free booklet: "CTA Zaponite Wood Lacquers for *Controlled Temperature Application*."

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Service from every angle... that's ZAPON

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ATLAS POWDER COMPANY

Industrial Finishes

Stamford, Conn. · North Chicago, Ill.

Brushing is a method of staining that is used on the larger and more complex items — and especially where a finisher is using a combination filler-stain which usually cannot be dipped or sprayed satisfactorily.

What to Look For When Selecting and Using Stains

When selecting and buying stains it is desirable to know the qualities that make a good product. Some of the desirable features that stains should have are:

1) Ample solids content to give proper body.

2) Proper drying time to satisfy production requirements.

3) Uniform color. Stains that dry splotchy or streaky are undesirable in any good finish.

4) The quality of not leaving "runs" after the staining job.

5) The quality of being easy to work. If the stain is too thick or sticky it will retard the wiping.

6) Depth of color.

7) Penetration; lasting coverage.

8) Non-grain-raising.

Many colors of stain are available —mahogany, oak, walnut, maple, cherry—and any number of light stains such as those used to produce limed oak, wheat finish, etc. Not all manufacturers of wood products use expensive furniture woods, such as mahogany or walnut. Less expensive woods, such as gum, can be stained in mahogany (or any other color) and, when properly stained and finished, only a real expert can differentiate between the finished furniture that is solid or veneered mahogany and furniture that is just mahogany finished.

Wood to Be Stained Must Be Smooth, Clean and Dry

Preparation of the wood for staining is just as important as the staining operation itself. If the surfaces are not dry and clear and smooth, no type of finishing will be satisfactory. Wood surfaces in the white should be made smooth by careful sanding. If dirt or grease is present, it can be removed with benzine. Knots should be treated either by filling or, if possible, cut out altogether in the cabinet room.

Open-grain woods like oak, should be filled. Otherwise they react much the same as a blotter. Filler may be applied either before or after staining, and in some cases, it is possible to use a combination stain-filler, although this latter process is necessarily a slow one.

The tools and equipment used for staining are quite simple. Where a stain tank is used for dip staining it is better to have the drainboard drain away from the tank so the excess stain flow can be directed into a metal container and then periodically emptied back into the stain tank.

The stain tank itself should not have a flat bottom. The bottom should be tapered down toward the center. Then it will be more easy to agitate the contents so that pigment solids will not accumulate in the bottom of the tank. The tank itself should have a metal cover, held open when in use by a metal chain attached to the cover by a fusible link. When not in use the cover should be kept closed. Careful, well planned staining can add much to the finished appearance and value of a product.

Blushing and Blooming

WHEN THE humidity (moisture content in the air) is high and there is little or no movement of air in the room, sprayed clear lacquer coatings are likely to blush unless special care is taken to prevent it.

This blushing is caused by *rapid evaporation of the solvents lowering the temperature at the surface of the wet lacquer film.* Lowering the temperature draws moisture from the air into the drying surface, resulting in the milky white or grey coloring known as blushing.

Sometimes, when the humidity is low, that same milky white finish will appear in the lacquer film; this happens in furniture finishing, and it is prevalent in tanneries. This milky finish is not a blush it is a bloom.

Bloom is caused by excessive moisture content in the material being sprayed. If a wet coat of lacquer is sprayed on to leather or wood that is not thoroughly dried or cured, the rapid evaporation of the solvent lowering the temperature at the surface of the film will cause a partial vacuum at the evaporating point. This partial vacuum permits the warmth of the article being sprayed at room temperature to set up a "boiling action" in the wet lacquer film. The "boiling" of the wet lacquer film draws the moisture up from the wood or leather, discoloring the film from the base instead of from the top, as in blushing.

A blush can usually be cured by spraying a coat of thinner over the blushed area; but a bloom is at the bottom of the lacquer film; sometimes it can be hidden by spraying with thinner. I say "hidden" instead of "cured" because the bloom, being at the base of the lacquer film, the adhesion has been destroyed and no matter how we try, it is impossible to carry the lacquer thinner down through the moisture once it has entered the base of he lacquer film.

The only way to prevent blooming is to change atomizing nozzles on the spray gun and reduce the material pressure at the pressure tank. This change is made to permit a finer break-up of the lacquer particles, and to spray a slightly drier coat, which will prevent the "boiling" action.

As a footnote for the gentlemen who would like to prove that theoretically I am wrong, may I suggest that you take one of the Xmas tree lights shaped like a candle and partially filled with alcohol and hold it in your hand. You will note the heat of the hand is sufficient to boil the alcohol in the Xmas tree light tube, and if the heat of your hand will boil alcohol under certain conditions, what will be the chemical action of much faster solvents in the lacquer film?—W. BEACHAM.

Testing Service for Materials

The South Florida Testing Service, 4201 N.W. 7th St., Miami 44, Florida, has published a new bulletin which reveals some of the highlights of its testing service, as an independent laboratory. This testing and research organization specializes in making actual accelerated weathering and sunlight tests; also tests for corrosion, mildew, rot and general deterioration in connection with protective coatings and other materials.

The results of exposure tests in South Florida, at this firm's inland proving ground, on paints, lacquers, fabric, paper, etc., closely parallel the ultimate failures found in northern latitudes, but are accelerated many times due to the constancy and high values of climatic conditions.

The company has several testing locations in South Florida for the following types of tests:

a) Inland for general weathering and sunlight tests.
b) Salt atmospheric (seashore location).
c) Tidewater (alternate sea water immersion).
d) Total immersion (antifouling, corrosion, etc.)
e) Storage (shelf and warehouse).
f) Complete instrumentation for measuring and recording solar radiation in ultraviolet and total sun hours, direct and under glass; also all weather factors at test location including temperature, humidity, precipitation in hours of wetness.

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BAKING ENAMELS
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ENAMELS FILLERS
SEALERS SUPPLIES
PRIMERS STAINS
SYNTHETICS VARNISHES
Each year more and more manufacturers rely on New Period Quality Finishes
• Fillers and Stains
• Lacquers—Clear and Semi-Gloss
• Sealers
• Lacquer Enamels—Flat and Gloss
• Synthetic Enamels
There Must be a Reason!
Write for 5 gallon working sample at drum price.
MANUFACTURERS OF FINE WOOD AND METAL PRODUCTION FINISHES
NEW PERIOD Production Finishes
NEW YORK WOODFINISHERS' Supply Co
BROOKLYN N.Y.

Stille-Young
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PAINTS
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For Highest Quality Finishes
Beauty and Durability

STILLE-YOUNG
Manufacturers
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Safety and Comfort for your sprayers
PULMOSAN R-151 Respirator
Prevents inhalation of fumes and particles of paint, enamel, lacquer. Easy-breathing, fits any face.

Pulmosan Safety Equipment Corp.
644 Pacific St., Brooklyn 17, N. Y.

P.P.G. Co. to Build Paint Plant Near Los Angeles

The Pittsburgh Plate Glass Co. expects to sign contracts for the construction of a paint plant at Torrance, California. An ultra-modern plant, the Torrance plant will cost approximately $1,250,000.

Located about 15 miles from downtown, Los Angeles, the plant will be erected on a triangular, 15-acre site, fronting on Crenshaw Boulevard. Original equipment will permit production of 1,500,000 gallons annually. Sufficient floor area for additional equipment is available to boost the production to 2,500,000 gallons in the future.

Employees of the Los Angeles paint plant, operated by Pittsburgh Plate Glass Co. since 1925, will be transferred to the Torrance operation when the new unit is ready for production. Louis F. Theurer, divisional director, will be in charge of the operation.

Salesmen Honored at Convention of Grand Rapids Varnish Corp.

Highlight of the Grand Rapids Varnish Corporation's annual sales convention, held in Grand Rapids September 27 and 28, was the presentation of awards to salesmen with outstanding service records. Mr. Joseph Hager (left) Vice-President, and Mr. Howard Lawrence (right) President of the corporation, presented Everett Bryant (center) High Point territory salesman, with a sterling silver tea and coffee service commemorating 25 years with the Grand Rapids Varnish Corporation.

Other salesmen especially honored were Harold Worth, Grand Rapids representative with 30 years service; and Roy Cook, Pennsylvania salesman with 31 years service. Special award plaques were presented to others with over five years association with the company.

Presentations were made at the wind-up convention dinner, held in the Pantlind Hotel, which climaxed two days of concentrated clinical meetings and demonstrations of new company products and new finish designs for the fine furniture, household appliance and metal fields served by Grand Rapids Varnish Corp.

Joseph Hager, V.P.; Everett Bryant, High Point Salesman; Howard Lawrence, Pres.

Uniformity

IN

LACQUER THINNERS

"20,000,000 gallon reasons"

BARKER

BARKER CHEMICAL COMPANY

One of America's Largest Manufacturers of Lacquer Thinners

2258 SOUTH UNION AVE. CHICAGO 16, ILLINOIS

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MAKE HER SAY
Quick Facts
about
Polydurene Metallic Finishes
• Outstanding new vehicle development
• Porcelain-like surfaces
• Obscures surface defects
• Easily applied—spray, then bake or air-dry to a high-quality finish

with a

Polychrome Metallic Finish

pigmented with Alcoa Albron Pigment

Help make up your prospect's mind. Make your product stand out over competition by using a Polychrome Metallic Finish. It's subtle enough to harmonize with any setting—but has the extra sparkle on the dealer's floor to make prospects say, "I want that one."

From heaters to cabinets—for any product finish—you can apply this high-quality finish at low cost. No more expensive than that of a drab utility coating.

Made with Alcoa Albron Pigment, Polychrome Metallic Finishes are easier to apply now with the development of new application techniques. Just spray it on . . . then bake or air-dry to a lustrous, porcelain-like finish.

Polychrome Metallic Finishes are available from commercial suppliers in a rainbow variety of colors, with a special Alcoa Albron Pigment to add extra depth and luster. Consult your supplier, or write to ALUMINUM COMPANY OF AMERICA, 687 Gulf Building, Pittsburgh 19, Pennsylvania.

Why settle for "just any finish" when a* POLYCHROME *Metallic costs no more

ALCOA

ALBRON PIGMENTS

for Production Finishes

ALCOA ALUMINUM

ALBRON

No "Jackass" in a paint pail!

EGYPTIAN'S 1 Coat Hammered Finish

Doesn't have that objectionable "shot at" look.

Doesn't have "pits."

Doesn't require an expert to apply — and that includes pattern control.

Can be wet patched without looking that way.

Goes over those peaks and valleys in your product without changing into something you never expected to see.

Has a "Sunday Best" spruce appearance.

■

Available in an air-dry or baking synthetic — and in a nice array of colors.

The Egyptian Lacquer Manufacturing Company
South Kearny, N. J. *Lafayette, Ind.*

EGYPTIAN
INDUSTRIAL FINISHES

SYNTHETICS • ENAMELS • LACQUERS • VARNISHES

Appearance Design

THE HUMAN EYE can be the best salesman any product could possibly have. Because the eye grasps impressions more completely and retains an accurate image longer than any other sense, the visual appeal of an article is one of the most important factors in selling. Without an interesting, attractive appearance, the best product made will remain on the shelf, while others — even though mechanically inferior—will sell because of their attention-getting form and finish.

Attractive, efficient product styling gives a boost to sales and often it helps to cut costs.

Product Appearance Has Powerful Eye Appeal

The reader knows from his own experience the powerful appeal of product appearance. How often we choose one article over many others simply because it looks more attractive or substantial. And this principle applies not only to consumer goods, but to commercial and industrial equipment as well. Such things as electric motors and production machines are, in many cases, fairly well standardized; any one of several brands will do the necessary job equally well. Yet the motor or machine with the most pleasing and efficient appearance will almost invariably be chosen.

Despite its importance, the appearance of a product frequently receives last consideration in the design process. Yet such superficial attention is often worse than none at all, when the broad principles of appearance design are considered.

First of all—a product must look like what it is. Strange as it may seem, this fundamental of product design is often overlooked, to the eventual dismay of the manufacturer. New lines, a more pleasing appearance, new colors, or a rearrangement of elements — all are permissable as long as the potential buyer is still able to reconcile the finished product with the particular function involved.

Product Must Look Like What it Really Is

The modern telephone handset is an example of this principle. Older models were ungainly upright devices with a separate receiver and mouthpiece which had to be separately located and handled. Today's telephones concentrate the mouthpiece, handle and receiver in one streamlined easy-to-use unit. Despite these design changes the tele-

Reprinted from October 1949 issue of "Competition", which is published by The Commonwealth Engineering Co. of Ohio, 1771 Springfield St., Dayton 3, Ohio.

phone is still easily recognizable for what it is. The function of the unit remains understandable even though the basic design has been radically improved.

Too Far Ahead of its Time, or Too Far Behind

A classic example of a design which purchasers did not readily correlate with their preconceived notions was the 1934 Chrysler Airflow automobile. The designer of this car was unquestionably on the right trail — as succeeding years have proved—but he was too far ahead of his time. In those days, even as today, an automobile had to look like one before it could be sold, regardless of the technical advantages it may have had over its competitors.

Several pioneer refrigerator manufacturers encountered the same difficulty. When the "iceless" was first put on the market, a few companies made their new refrigerators look exactly like the old ice boxes they were to replace, but they soon found that the public demanded something that not only did a new job, but looked the part.

Must be in Harmony With Associated Products

Achieving the shape and appearance of a finished product which will be in harmony with its intended use requires careful analysis. Consider, as an example, the lowly wastebasket. If intended for kitchen use, the basket should be big, and probably white to harmonize with cabinets, refrigerator and stove; it might be of simple cylindrical shape to correspond with the other things found in a kitchen.

If placed in a bathroom, however, such a basket would give the unpleasant air of a dispensary. Hence, a wastebasket designed for bathroom use would be smaller, in a softer pastel color, and an elliptical or other less harsh shape.

Yet either of these articles would be out of place in the living room or library. Here, fluted or more elaborate shapes; leather, hand painted or cloth finishes are more in keeping with the surroundings.

Pleasing Lines and Color; Utility Efficiency

Another responsibility of the designer is to develop a product artistically, with eye-catching lines. He must be careful to eliminate sharp, crude corners, distracting elements, unbalanced proportions, or clashing color effects which destroy the overall effect of a products appearance.

Efficiency of use is another requirement for proper design. Handles must be designed for easy use; dials should be so grouped or placed that their use requires a minimum of effort; potential accident sources should be eliminated, and the finished product must be easy to operate and clean.

A properly designed article will incorporate all of the features just mentioned. It will look like what it is, will fit harmoniously into its surroundings, have a satisfying appearance, and be efficient to use.

Professional Appearance; Built-in Styling

To accomplish this, the designer must of necessity begin work with project engineers and other specialists at the very start of development of a new product. Successful

STOP!

don't shoot yet . . .

The biggest obstacles to good paint, varnish or enamel jobs are the little particles and specks of grit, dust and lint, that accumulate on the surfaces to be finished. They cannot be gotten rid of with a dry cloth or with an air hose. The only way to effectively remove them is with a Tack Rag.

The "Dust-All" Tack Rag chemically treated for the purpose, used for wiping surfaces before finishing, is definite assurance at the cost of only a few pennies, that a satisfactory finish job will result.

Ask us about the "Dust-All" Tack Rag; what it will do; how it will actually save money on finishing operations.

The
"DUST-ALL"
TACK RAG
Be sure you get it in the Red Checked Bag

Used on practically any type of product (metal or wood) the "Dust-All" Tack Rag will help eliminate spoilages and assure a finer finish.

HARDING
Manufacturing Co.
10606 Gratiot Ave., Detroit 13, Mich.

industrial design implies far more than mererly dropping a smooth streamlined case over the working parts of a product.

Alert manufacturers achieve proper appearance design in their products, either by employing an industrial designer who is available for consultation at every stage of the product development process, or through the services of an organization which devotes a considerable portion of its time to new product engineering for a wide variety of clients. Here, professional staff engineers fully recognize the importance of "built-in" styling which moves hand-in-hand with the mechanical development.

Consider Mfg. Cost Too; Break with Tradition

In addition to the sales advantage that appearance design can give to a product, manufacturing costs can often be radically lowered in the process. In a good design, the product and its parts are frequently simplified, and "appearance" elements share mechanical duties.

In place of a not-overly-attractive formed sheet metal housing, for example, a streamlined die-cast case might be used, incorporating mounting brackets, bearings and even nameplate identification.

In a drastic break with tradition, a harmonica manufacturer switched from conventional wood and metal construction to polystyrene, with a saving of 75 parts and 80 assembly operations. The new product is molded in an attractive, easy-to-handle, shape, and in handsome color.

Costs can be "down graded" and eye appeal "up graded" by other substitutions as well. Application of a wrinkle enamel finish in the usual single coat gives to cameras and other instruments the desirable appearance of leather at a fraction of the cost.

Molded Plastic Parts Plus Masked Painting

Automobile and appliance makers are using new plastic name plates and decorative devices to replace the more costly die-cast, enameled or etched identification elements formerly specified. In this process, all the design detail is molded in the the back of a transparent plastic piece. Then various colors are spray-painted in the molded depressions, with the help of form-fitting masks. Aluminum and bronze paints give the effect of inlaid metal, and the colors are even more brilliant than transparent baked enamels. Extra eye appeal can often be obtained by designing a product to emphasize such handsome devices or other decoration.

Getting something for nothing, the authorities tell us, is a moral if not a mathematical impossibility. If so, then boosting sales appeal while cutting costs—under today's market conditions — must be the nearest thing to it. If face-lifting redesign would help your profit picture, it is suggested that you consult a reputable individual or firm that specializes in product research, engineering, design or development.

"Testing of Furniture Finishes" is the name of a free book published and distributed by Foster D. Snell, Inc., 29 W. 15th St., New York 11, N. Y.

. . . and that's only one of the features of this remarkable new product that *combines the major qualities of lacquer and furniture varnish.*

Printex varnish is the result of long and exacting research at the Reliance laboratories . . . proved in large scale production for more than a year. Read these other Printex features then send for at least a trial order . . . today.

- Varnish solids—lacquer speed.
- One coat has body of 2 lacquer coats.
- Sets out of dust in 15 minutes.
- Air dries to rub or pack in 16 hours.
- Force dries in 1½ hours at 125°-140°F.
- Can be rubbed as soon as cool.
- Clear, transparent — no blushing or blooming.
- Saves time and labor.
- Water and alcohol resistant.
- Sprays easily, smoothly and quickly.
- Does not settle in package.
- Supplied in gloss or dull lusters.

For additional information address 4734 Crittenden Dr., Louisville, Ky.

Rely on Reliance

RELIANCE VARNISH CO.
INCORPORATED
Affiliated Factories In
Louisville, Ky. • Brooklyn, N. Y.
Chicago, Ill. • Asheville, N. C.

Letters from Readers

Paint and Lacquer Flow Meters

Will you please give us information regarding manufacturers of metering devices for materials used in spray finishing departments?—SPRAY EQUIPMENT CO.

We manufacture a meter that is being used by several paint and lacquer manufacturers, but in each case we must know the chemical characteristics of the liquid, and insist on a representative sample of the product for laboratory analysis before we are able to make recommendations.

Some paint products are heavily pigmented and our meters are not suited to handling some of these liquids, but in many instances we are able to do a complete job. One of our engineers from our Los Angeles office will call and make a survey to see if we can serve you.—BOWSER, INC., Ft. Wayne 2, Ind.

Metal Cleaning and Phosphate Coating on Steel

Right now we are faced with a problem on which we thought you might be able to help us; that is, some method of cleaning the steel parts of our desks and depositing a phosphate coat, so that we will get better adhesion between the paint and metal surface. Can you give us names of people who handle this material?—G.E.CO.

In a letter we are naming several firms who can supply the materials and processes you want.—ED.

Fluorescent Screen Process Paint

We are interested in locating a source of supply for a silk screen paint consisting of fluorescent particles. This material, after being silk-screened to the metal or cardboard, whichever the case may be, glows brilliantly, with only a small amount of light rays cast upon it.

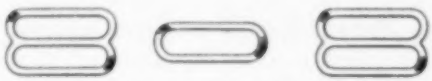
We have a customer who has asked us to supply a sign with this particular fluorescent paint on it, but we do not know just where to locate same.—The Verplex Co.

Perhaps you have in mind the screen fluorescent paint, "Day-Glo", manufactured and sold by Switzer Bros., Inc., 1220 Huron Road, Cleveland 15, Ohio. There may be others, but at the moment, we do not know of them.—ED.

We Can Coat Small Thin Shoulder Strap Buckles

In May, 1949 issue we noticed an inquiry headed "How to Coat Small Thin Parts" (page 96). "C.F.Co." asked for advise on how to paint shoulder strap buckles used in women's underwear.

The Editor wrote a short article offering suggestions. He stated too that "several firms in this country and abroad are asking this same question about the same kind of products". It appears, therefore, that you will be interested to learn that our firm has a tried and proved method of covering these small thin parts with a first class coating, and at a reasonable cost.



Thin flat link—shaped metal pieces.

It occurs to us too that it would be in line with your valuable policy of acting as a clearing house for finishing information, to refer to us the names and addresses of all those concerns who wish to have this work done.

We thank you for all your past favors and hope that in this instance, too, you will oblige us with your assistance.—PYRAMID INDUSTRIAL FINISHING CO., New York 55, N.Y.

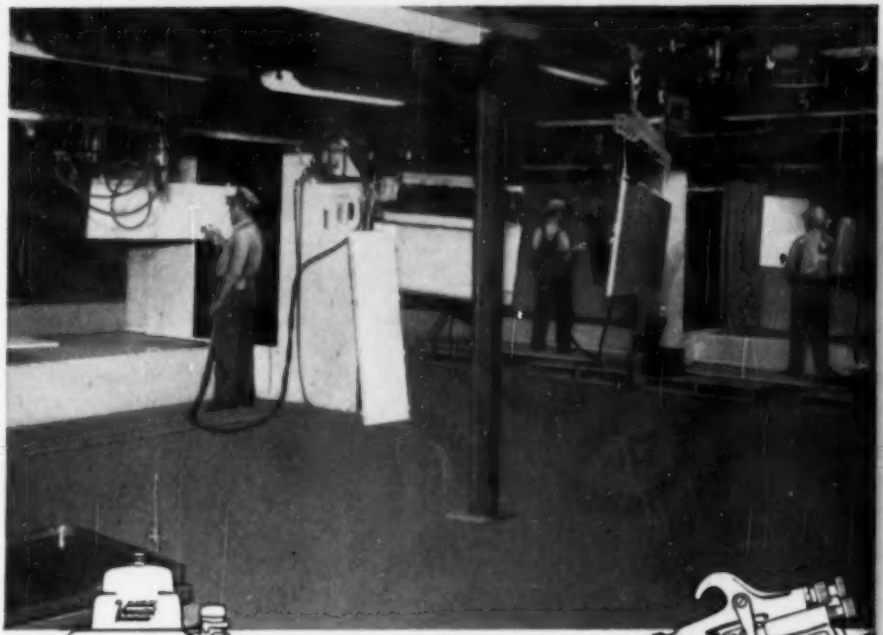
Thank you for this information. In a letter we are giving you the name and address of C.F.Co. (United Carr Fastener Co.)—ED.

Fire Resistant Paint

Please forward name and address of supplier of fire resistant paints, concerning which comments were made on pages 106 and 107 of September, 1949 issue of INDUSTRIAL FINISHING. We are particularly interested in the material for outdoor use which is claimed to withstand temperatures up to 1800° F.—K.L.R. (Metallurgical Dept.)

The fire resistant paint mentioned in the first paragraph of the item is a new one developed in the laboratories of Sherwin-

Faster Finishing at Less Cost



Pump and Spray from the Original Containers

1 Air-operated Versatal Pumps dispense materials directly from original drums . . . serve up to 6 spray heads.

2 Hydraulic pressures deliver materials through as much as 1000 feet of hose or pipe.

3 Versatal eliminates "time-out" for material handling and transferring . . . increases output per man hour.

ALEMITE
Versatal
SPRAY-PUMP EQUIPMENT

Stewart-Warner

For complete details write Alemite, 1805 W. Diversey Pkwy., Chicago 14, Illinois.

Williams Co. It is temporarily known as "Coating-X," and is available only for experimental purposes, according to information I have at the moment.

The coating referred to in the second paragraph of the same item, on page 107, is a product of the B. F. Goodrich Rubber Co., Akron, Ohio. This material was developed at the request of the Navy and was tested out on dive bomber fuel tanks at Floyd Bennett Field with success. I do not know the trade name under which it will be distributed.—P. C. BARDIN, Associate Editor.

Few Back Copies of I. F.

A few copies of INDUSTRIAL FINISHING Magazine, for the following years and months, are available at 20 cents each, stamps acceptable:

1941—Apr., June to Dec. inclusive.
1942—Apr. to Aug. and Oct. to Dec.
1943—Feb to Apr. and June to Nov.
1944—April, June and August.

Electrostatic Detearing

I would like to have the names and addresses of the various firms that manufacturer electrostatic-detearing equipment. I noticed this equipment mentioned in a recent article in your magazine, but have not been able to find the name of the manufacturer.—F.H.

The electrostatic-detearing equipment (also electrostatic-spraying equipment and process) are exclusively the patents and processes for lease by Ransburg Electro-Coating Corp., 1254 Barth Ave., Indianapolis 7, Ind.—ED.

Who Makes Air-Dry Crackle?

One of our customers has requested an air-dry crackle finish. Since we do not make crackle or wrinkle finish, we would appreciate any information you could give us as to who might supply a finish of this type.—Harrison Paint & Varnish Co.

Our list of concerns that formerly made a crackle finish of any kind is small and old. In a letter we are naming the five or six concerns listed on our reference card. Would like to hear from firms that can now supply crackle finishes.—ED.

Striping Tools Wanted

In September, 1949 issue, under the heading "Letters from Readers", there is an inquiry on page 84 for the addresses of manufacturers of paint striping tools. We would also like to get these names and addresses.—Javan Studios (N.Y.)

Information supplied.—ED.

Spray Paint Recovery Systems

We have received an inquiry from one of our foreign distributors, requesting information on spray-type paint recovery systems, and wonder if you can furnish us with the names of several companies manufacturing this type of equipment?—C. & C. C. Corp.

We are pleased to refer you to Industrial Coating Engineers (Attention John J. Zolad) 2272 National Bank Bldg., Detroit 26, Mich.—ED.

Pump Paint from Drum

Can you give me the names and addresses of any companies who make a spray pump outfit for pumping paint and also heavy coatings like thick roof coating? I am looking for something on the same principle as the Alemite Versatal pump which can be placed right on an ordinary 55-gallon drum container.—W. G. H. (Research Chemist).

Try the large manufacturers of spray painting equipment, whose advertising you see in this magazine. Also the company mentioned on page 102 of Oct. 1949 issue. —ED.

Silk Screen Printing

Will you please send us tear sheets on the silk screening process, if they are available?—M.P.Co.

We have published several articles on this subject, but are sending you, with this letter, tear sheets of a 3-part article which appeared in February, March and April 1949 issues of INDUSTRIAL FINISHING Magazine. We hope that you will find the contents of these articles interesting and informative.

If you would like further and more detailed information on this subject, we are happy to refer you to a new book entitled, "The Silk Screen Printing Process," which we can send you for the very low price of $4.00 postpaid (payable in advance). Some information about this book is contained in ad advertisement appearing on page 111 in Oct., 1949 issue of INDUSTRIAL FINISHING Magazine.—ED.

Colors Produced by Mixing Paints

In INDUSTRIAL FINISHING Magazine under date of July 1945, you had an article on "Colors Produced by Mixing Paints." Is there some way in which I can secure a copy of this article? I could use it to good advantage.—P.F.

We have no more copies of July, 1945 issue of INDUSTRIAL FINISHING which contained the article about, "Colors Produced by Mixing Paints". We have a book which

It pays...

to keep your door open

to a RANDOLPH salesman . . .

because he's selling the finish that's RIGHT for your product in color, protection, durability.

We quote from the letter of an on-the-ball purchasing agent to one of our salesmen:

"We needed a lacquer with these 4 guaranteed qualities:

1-lasting adhesion to difficult and ordinary metals

2-blush-proof

3-resistance to spotting-out conditions

4-perspiration resistance

We tried your clear metal lacquer #1185 and thinner #100A. The results? An increase in orders indicates that the saleability of our products was definitely improved by the use of this finish."

Let Randolph Supply the Exact Finish . . .

There is no finishing problem too difficult for our staff of expert technicians. Their advice is yours for the asking—cost-free. Try our consultation service—it's the easiest way out of that dilemma.

Randolph

PRODUCTS COMPANY

Carlstadt, New Jersey

DOPES • LACQUERS • ENAMELS • THINNERS

sell for only $2.50—a book entitled, "The Mixing of Colors and Paints," by Vanderwalker. It contains 286 pages and is illustrated with color chart and drawings. Perhaps this would suit you better.—ED.

Where's Drigard Products?

Kindly furnish me the address of the Drigard Products Corp.—S.H.B.

It's 799 Seventh Ave., N.Y. 19, N.Y.—ED.

Automatic Polishing Equipment

Can you give us the names of manufacturers of automatic polishing equipment suitable for use in our polishing department? We realize, of course, that certain engineering changes are required to adapt the machinery to our particular products. (Jewelry).—M.J.Co., Inc.

In a letter we are naming a few concerns who, we believe, may be in position to supply you what you want, or advise you who can.—ED.

Paint for Cadmium Plate

Being desirous of finding a paint that will adhere to a cadmium plated surface and knowing that some of your clients must manufacture such, I would appreciate your sending me some data. My problem is that the green zinc chromate that is being applied to the cadmium plated surface will not adhere and can be scraped off easily by the finger nail.—V. Inc. (Detroit, Mich.)

Probably some of the large paint companies in your city could furnish a material suitable for your requirements. Have you tried them? Other concerns who could probably supply what you need, are being named in a letter we are sending you.—ED.

Articles on Tumble Finishing

I am under the impression that one of the recent issues of INDUSTRIAL FINISHING Magazine contained an article on tumbling. Am I mistaken? I do not seem to locate the article right now. If such an article did appear in one of your issues, would it be possible to have another copy of this issue? Or even tear sheets of this article would be welcome.—J.F.

Yes, we have published several articles about tumble finishing in INDUSTRIAL FINISHING. However, the demand for information on this subject has been so great that most of our tear sheets from old copies and reprints are exhausted. In a letter we are sending you what material we can find at the moment.

We have in type, ready for publication what we believe is the best article we have ever published on the subject of tumble finishing wood turnings, etc. It was written by a man in Portland, Maine. The points he stresses are to use very thin coats of material—two or three or four of them rather than one heavy coat, as in dipping. We expect to publish this article in an early issue of the magazine.—ED.

Alodizing

I would appreciate available literature on "Alodizing," as referred to on page 20 of Sept., 1949 issue of this magazine.—M. M.

"Alodizing" is a process of applying a protective chemical coating on aluminum and its alloys. It can be applied by spraying, dipping, tumbling or flow-coating. For further information about this, write American Chemical Paint Co., Ambler, Penna.—ED.

Finishing Razor Blades

I would appreciate any information you might give me in reference to the finishing of razor blades. Also the name of any concern that manufactures machinery for coating razor blades. I would appreciate this information as soon as possible.—C.C. C.

Sorry, we haven't the information. Can some reader help us on this?—ED.

Whose Degreasing Equipment?

We refer to the September, 1949 issue of INDUSTRIAL FINISHING, pertaining to the article, "Painting-Baking Setup for Bus-Bar Ducts," which starts on page 28 and 29, as prepared by J. A. Unger, Plant Engineer of the Bulldog Electric Products Co. We would appreciate it if you would give us the name of the company who supplied the vapor-degreasing equipment indicated in this "Painting-Baking Setup." —R.E.D.Co.

Author of the article tells us this equipment was supplied by Detrex Corp. of Detroit.—ED.

Masking Paper and Tape

In August, 1949 issue, there appeared an article entitled "Masking for Spraying" (pages 40-54) by George Conrad. Mr. Conrad mentioned the fact that masking paper is available in all widths, with tape already applied to two edges. Could you supply us with a Chicago dealer for this type of masking paper?—R.&R.

Author of the article states that he had in mind a product of Minnesota Mining & Mfg. Co.—ED.

FOR FAST PRODUCTION . . . *lower cost!*

REPLACE LACQUER OR VARNISH WITH SYN-POR FORCE DRY CLEAR

FINISH—
PACK—SHIP IN
ONE DAY

SYN-POR Force Dry CLEAR Product Finish is the answer to today's high production demands. It reduces drying time from three days to a mere four hours or less! SYN-POR CLEAR Product Finish is greatly mar-resistant . . . withstands hard usage.

If you are a manufacturer of tables, pianos, wood kitchen cabinets, desks, or "what have you," requiring a hard, clear finish investigate SYN-POR Force Dry CLEAR!

RESISTANT TO HARD USAGE

- ***Unaffected by nail polish, alcohols, household alkalies and acids, fats and greases.***
- ***Great color retention properties.***
- ***Available in White and any color.***

Write for descriptive information and sample panel.

SYN-POR DURO FINISH

Over 50 years Manufacturers of Enamels and Lacquers

O'NEIL DURO COMPANY
MILWAUKEE 7, WISCONSIN

Baked Enamel Blisters Over Aluminum Castings

We are being plagued by blistering on our baked enamel finishes of aluminum sand castings. Would you please furnish us data on finishing aluminum sand castings, if available, or direct to us a source whereby we might obtain this information?—O.R.Co.

A probable explanation of the cause of those blisters is that numerous pores, air pockets, and small surface defects in such castings allow air to be trapped, either within the casting or directly beneath the film of paint. When the enamel is baked, this trapped air (and possibly other gases) expands and pushes the thin film of paint or enamel outward thus forming a blister in the coating material.

If the tiny holes are sufficiently large, a thin wash coat or primer may flow into them. However, if the holes are too small or if the paint is heavy, it will "bridge" over them. Later, when that entrapped air is expanded by heat it presses outward against this bridged film and forms a blister. When the baking cycle is completed and the metal casting cools, some of the blisters may collapse. This might be partially explained by the fact that as the air (forming the blisters) cools, it contracts, and allows the blister to collapse due to the vacuum that is created.

Writing on this same subject in this magazine about three years ago, Elton Sterrett, then with a custom finishing shop in Houston, Texas, said:

"We tried the sealing method involving immersion in a sodium silicate solution, but soon arrived at the conclusion that it was impossible—or at least impracticable—to position each each casting in the solution so that the fluid could enter and completely fill each tiny hole. And where complete replacement of air or occluded (shut in or absorbed) gases by the solution is not obtained, the residual air expands under the heat of baking the enamel, and bubbles follow. Experiments in raising the working temperature of the sealing solution succeeded only in reducing the size of the bubbles, but not in decreasing their frequency or the certainty of their occurrence.

"Close check of casting temperatures of aluminum in a nearby foundry revealed two basic facts: 1) that the amount of porosity in the casting increased rapidly in case the pouring temperature was more than 50° above or below the ideal casting heat for the alloy being used and, 2) that such close regulation was impracticable from a production standpoint.

"Study of ground and sanded specimens through micro-photographs showed that the surface metal was, in effect, being "flowed" across minute pores near the surface, forming traps for air and affording supports on which the paint would bridge, giving an air-trapping effect several times that of a 'raw' casting .

"We tried sandblasting, with varying pressures and grits. Finally we discarded sand entirely in favor of metallic shot. Use of shot, with a 40-lb. pressure in the air hose, re-

makes the difference!

The Esso gasoline pump shown is a standard example of the many familiar industrial items in daily use by millions which owe their sleek, sales-making appearance to Kirco Modern Coatings.

This actual photo of the pump refinished by Ten Hoeve Brothers of Paterson, N. J., graphically illustrates the sales advantage in keeping such equipment looking its best always! Periodic finish renewal with a durable, flexible Kirco Coating is the answer.

With the relationship between product *packaging* and *sales* now being fully realized, more and more oil companies are insisting on Kirco Modern Coatings for equipment refinishing. For in gasoline, the pump *is* the package!

KIRCO Kirker CHEMICAL COMPANY

ONE EAST ELEVENTH STREET • PATERSON 4, NEW JERSEY

moved less metal from the castings, while the peening (hammering) effect gave a 'hammered' surface with none of the 'flowed' effect observed when any grinding or sanding was done to prepare the metal. This "hammered" surface did not have the gloss of a ground casting, but the percentage of rejects through blistered finish was less than 25% of that encountered before the experiments were made with shot blasting.

"Following completion of the government job, a small quantity of surplus castings was brought into the plant for further experiments which, due to wartime needs, were necessarily curtailed in favor of immediate output.

"Working with the immersion method of sealing the castings against the presence of subsurface air traps, a scheme was perfected for immersing the castings in a heated sodium silicate solution, under pressures sufficiently high to permit the solution heat to reach or slightly surpass that of the castings under infra-red lamps during the baking process. Sudden lowering of the pressure in the bath caused the air trapped in the castings to expand and work free, to be replaced by the solution with quite satisfactory sealing of the surface.

"Castings thus evacuated of the air and gases trapped in surface pores were found to show greatly reduced blister trouble when subjected to the standard bake-finishing temperatures.

"It was found, from further investigation, that bubble formation could be reduced in the castings, which had satisfactorily passed inspection at normal finishing temperatures, if the curing rate were speeded up by increasing the infra-red heat by more than a few degrees above the temperature reached in the sealing bath process. It appeared that further temperature rise tended to set up minute pressure foci inside the casting beyond those eliminated in the earlier treatment, and that these then acted exactly as had the original air traps nearer the surface.

"We also experimented with exhausting the air from casting pores in fairly high vacuum, admitting the sealing fluid to the castings while in the chamber. Results, qualitatively, were good; but the time factor ran the cost up prohibitively. We are still experimenting, sporadically. But in the meantime the plant has done some custom jobs for instrument makers, with a minimum of rejects from blistering. And on some special aluminum-copper alloys with high copper content, blistering has been noticeably absent."

Another writer, Wm. Beacham of Crystal Laboratories, offered these suggestions in the Jan. 1948 issue, page 92:

"It is natural for the air pockets in aluminum (porosity) to swell and cause blisters in the paint film under heat. It is not the paint; it's the casting istelf that is to blame.

"The best method of overcoming this condition is to sand-blast the casting or, if small enough, tumbling in a ball mill will do the trick. The object is to hammer with the abrasive or small metal balls, the surface of the castings to either break these air pockets, or to form a heavier surface of aluminum over the surface porosity. Or the simple cure would be to use an air-dry material."

Prima Vera Veneers Finishing Problem

Can one of your consultants give me the proper procedure for finishing prima vera? I have a small production job coming up which involves finishing panels 2¼x12x40-in. These panels will be, for the most part, walnut and mahogany, with a few in blond oak and prima vera. They will require a

SPRUANCE QUALITY

SINCE 1906

Wood Lacquer for the Furniture Industry, in Gloss - Semi-Gloss - Flat

This company has always featured a highly specialized and complete line for the furniture industry. Among these specialties are:-

LACQUERS of high quality – which may be rubbed – having excellent build – will stand cold check and resist alcohol. Their uniformity and hard finish – have been proven in actual production for many years.

SEALERS–(two types)–one that sands readily in a half hour. It's tough – time saving – satisfactory. The other – is of highest quality – has maximum toughness – holds out the finish, but cannot be sanded for an hour. They are adapted to your preference–your production methods.

Rely on The GILBERT quality for high grade lasting

SPRUANCE COMPANY durable finish . . . beauty.

Our research and technical staffs are at your disposal.
Inquiries Invited.

The Gilbert Spruance Company

Richmond and Tioga Streets
Philadelphia 34, Pennsylvania

durable finish comparable to that used on pianos or fine furniture. The 2½-in. thickness is to be faced with a veneer sold under the name "Flexwood". I am wondering whether this extremely thin veneer will stand up under either a glue size or water stain. Any information you may be able to give me will be sincerely appreciated. —S.A.F.

Prima-vera-faced Flexwood is finished the same way any fine mahogany would be finished. Flexwoods are real woods on a special type of backing. They can be glued on other woods or on other surfaces the same as veneers. They can be finished the same as real veneers and solid woods.

Your question as to the use of glue sizing and water stains on this type of wood can be answered by saying that water stain is one way to stain it—but, as in staining all veneers, *do not soak the wood;* apply only enough stain to produce the desired color.

I do not see where a glue size is necessary on any veneer. It's only purpose would be to stop suction of the wood, and this could be accomplished just as easy and with a more compatible material by using a reduced lacquer sealer as a wash coat in the finishing schedule.

Flexwood can be bleached the same as any other wood that can be bleached. The only precaution is that care must be taken to *avoid soaking the wood too much;* just apply a wet but even (uniform) application of the bleaching solution, and allow enough time between coats for the bleaching action to take place.

Prima vera will take oil stain, pigment stain or NGR stain; also filler and all standard finishing materials. Any standard schedule for finishing mahogany will produce a good finishing job. For example:

1) One application of NGR stain. Dry 30 minutes to one hour.

2) One application of wash coat. (Lacquer sealer reduced in the proportion of three or fours parts of thinner to one part of sealer). Dry one hour; sand lightly.

3) Fill, using a filler to match the stain color. Dry for at least four hours; longer if possible.

4) One coat of sanding sealer. Dry for one hour. Sand surface smooth.

5) One or two coats of clear gloss rubbing lacquer. Dry over night; rub and polish.

The color of the stain and filler should be selected according to the effect desired.—EDWIN HOGSTROM.

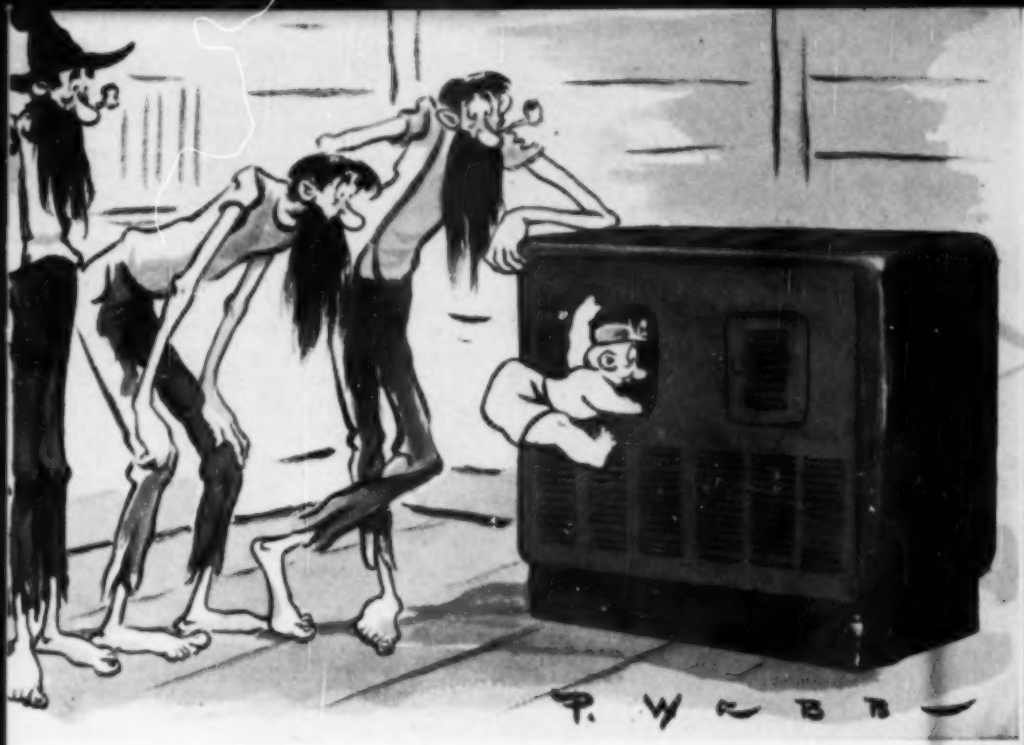
The usual prima vera finish consists of a wash coat, filler, sealer, and lacquer. The wash coat is shellac (bleached) or lacquer sealer at 5% to 10% solids. To this may be added minute amounts of non-grain-raising or spirit-soluble stains to enhance the tone, although such color is by no means necessary for a light, clean prima vera color.

After the wash coat is dry and has been sanded, the wood is filled with a very light yellowish-brown paste wood filler. Sometimes a natural filler is used for the purpose. The filler is followed by lacquer sealer and two or more top coats of lacquer.

"Flexwood" veneer is delicate, as you suggest, and I believe you will get best results with non-grain-raising stains. These do not raise the grain of the wood or roughen the surface in any way, and have no tendency to delaminate it.—ROLLIN H. WAMPLER.

New Plasticizer Catalog

Announcement is made of a new plasticizer catalog published by Tennessee Eastman Corp., of Kingsport, Tenn., giving complete information on all plasticizers manufactured by that company. Of particular interest to the plastic and protective-coating industries is a new low-color dioctyl phthalate (DOP), specifications and properties of which are included in the catalog.



"Watch! Uncle Rafe is about to larn that thet black VEDOC finish sticks and stays black at 1000 Degrees"

You just can't beat the new *VEDOC* Combustion Chamber Black for space heaters. More and more manufacturers are finding that this pigment sticks to the metal and stays black at temperatures to 1000 degrees. This finish protects the chamber from rusting . . . and continues this protection after the binder has been destroyed by high temperatures. Yet, when the heater is put into service, the fumes are at an absolute minimum. *VEDOC* Combustion Chamber Black air-dries in 10 to 15 minutes. It can be baked at high or low temperatures. May we send you a sample order and quotation for your requirements? You'll find the cost is low enough to make this a practical application on all modern heaters.

Vedoc

Remember, Ferro Is Set Up to Provide Complete Organic Coatings Service. From the Development of Diversified Protective Coatings . . . to the Designing and Installing of Efficient Finishing Oven Systems.

FERRO

LIQUID PLASTICS DIVISION

FERRO ENAMEL CORPORATION

4150 EAST 56th STREET • CLEVELAND 5, OHIO

New Wrinkle's New Products for Finish Manufacturers

New Wrinkle, Inc. is completing the equipment of its new pilot plant at Dayton, Ohio for the production of basic vehicles used in the manufacture of wrinkle finishes. It is anticipated that construction will permit the acceptance of orders for shipment by January first.

Through the use of these new products, the result of long research at its laboratories, the manufacturer of industrial finishes will be able to produce uniform, high grade and dependable Wrinkles without further cooking at its plant. The manufacturer will need only to add dryers and pigments, then package the ready-to-use product.

Three types of two standard vehicles will be made, all of which will be adaptable to texture modification. The WV-101 S material is based on a short oil oleo-resinous varnish, which type has long been a standard in the industrial finish field because of its dependability in producing a Wrinkle of uniform design and texture.

The new Type WV-201 L is a similar vehicle, with increased oil length to improve flexibility, when desired in the end product, with regard to pigmentation and baking schedules. This material will give a harder baking product in a somewhat shorter time than the WV-101 S formulation. Its specification is the same except for a long oil length.

The third standard vehicle, Type WV-301 A, to be offered by New Wrinkle, Inc., is of an alkyd type for those who prefer such a Wrinkle. It is recommended for formulations where alkyd resins are specified and where shorter baking conditions are required. WV-301 A possesses satisfactory mixability with oils and varnishes.

The New Wrinkle, Inc. laboratories were established over ten years ago in Dayton, Ohio. Its research activities have been and are under the supervision of Mr. William A. Waldie, who will continue as Technical Director for both research and manufacture. The company's Executive Offices are located at 1819 Bankers Building, Chicago, Ill., with Colonel R. F. Ohmer, as President.

Twin Coat Air Dries But Can Be Baked Week Later

Kirco "Twin-Coat" is a new coating developed and marketed by the Kirker Chemical Co., 1 East Eleventh St., Paterson, N.J. It has been produced specifically for manufacturers of those items which now require multiple sprays and bakes on different areas of the same unit. "Twin-Coat" is a single finish that air-dries for handling in five minutes, and can be baked at any time up to a week or more later.

It is designed to overcome the problem presented in finishes which can be either air-dried or baked, but not both.

With Kirco "Twin-Coat" the finish coat is applied to the first area and five minutes are allowed to elapse for drying, following which the item can be handled for application of finish to the next area. After application of

SUPERB RESISTANCE TO ALCOHOL AND ACIDS!

A MAJOR SALES ADVANTAGE OF

PYRO - CELLO - FILM

PYRO CELLO-FILM

• *The Superior Finish for All Wood Products*

Spilled drinks can't mar the beauty of your product if it's finished with PYRO CELLO-FILM. For sensational PYRO CELLO-FILM withstands even 180 proof alcohol . . . and is not injured by common household acids. PYRO CELLO-FILM assures lasting good looks because its extreme toughness and flexibility ward off bumps and scratches, repel the damaging action of water, heat, fats, greases and saline solutions.

FREE OFFER! We will finish one of your wood products with PYRO CELLO-FILM — without cost. Then you can see for yourself how wonderfully it solves your finishing problems. Write for complete information today!

PYRO CELLO-FILM is an exclusive development of

THE American VARNISH CO.
ESTABLISHED 1883
1126 N. NORTH BRANCH ST. CHICAGO 22, ILLINOIS

SUPERIORITY UNIFORMITY PYRO-CELLO-FILM

MANUFACTURERS OF VARNISHES — PAINTS — STAINS — LACQUERS — SYNTHETIC ENAMELS — CELLO FILM — SOLDERING FLUX AND SPECIAL COATINGS.

finish to the final area, at any time within the next week or even later, the product can be baked, sealing on all finishes at one time; or air-drying alone may be used, if desired, although baking provides a harder coating.

Kirco "Twin-Coat" comes in a full range of colors with finishes variable from gloss to full flat. The formula may be varied to suit the baking time to job requirements. "Twin-Coat" is suitable for use on all metal, wood, plastic, and glass products.

Hi-Solids Lacquer, No. 1350

A lacquer of 35% solids, delivered from the manufacturer at a spraying viscosity of 28 to 30 seconds, is announced by V. J. Dolan & Co., Inc., 1830 N. Larmie Ave., Chicago 39, Ill. This high-solids lacquer sprays at room temperature and is designed for use on fine furniture and wood cabinets. It produces a full-bodied film that is light in color and exceptionally tough; it becomes hard enough for rubbing after over-night drying. This finish will withstand 12 to 14 cold check cycles.

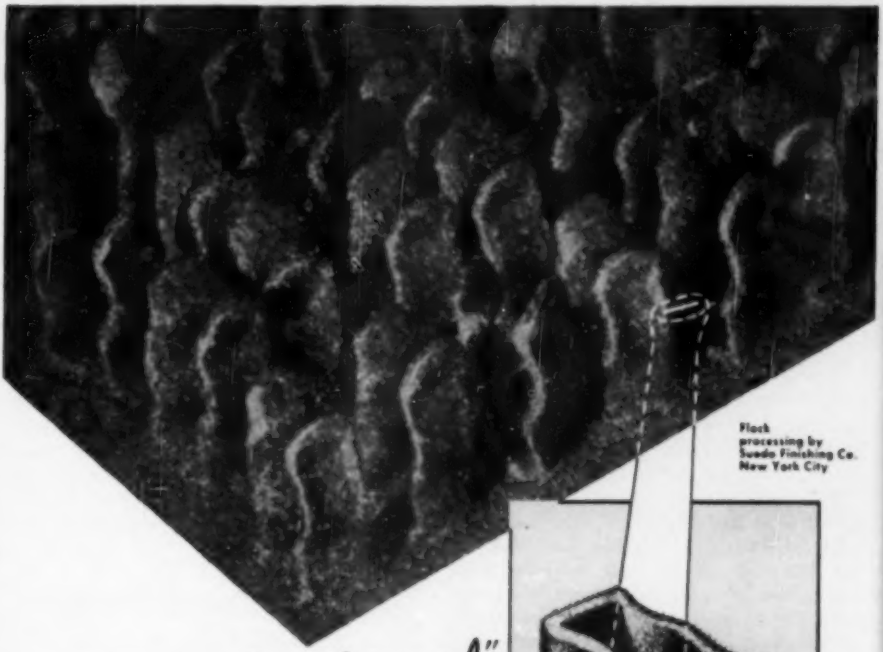
Tornado Portable Vaccum Cleaner Has Many Uses

Slung over the shoulder to leave both hands free, the Tornado Portable Vacuum Cleaner has a strong, steady, powerful suction which makes it especially suited for quick, thorough cleaning in close, confined places, in stock bins and shelves, under machinery and work benches, on overhead pipes, stairways and in all similar places where larger industrial vacuum cleaners are awkward and hard to handle.

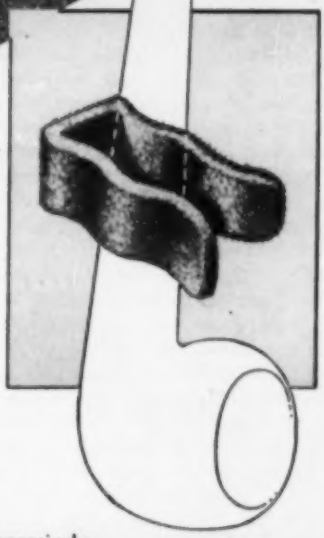
Manufactured in four sizes equipped with 1/3-hp., 3/5-hp., 1-hp. and 1-1/3-hp. motors with weights ranging from 7-lbs. to 16-lbs., these portable vacuum cleaners have universal motors mounted on permanently sealed bearings which require no greasing or oiling. Air intakes and suction openings are scientifically engineered and designed to secure a concentrated flow of air for cleaning which secures from 53-cu. ft. of air per minute in the smaller models up to 86-cu. ft. of air per minute in the 1-1/3-hp. size.

A completely new, patented design cast aluminum motor housing eliminates excessive operating heat and the entire mechanism is fully enclosed in a light weight, sturdy, streamlined aluminum fan housing which has been scientifically designed to create maxi-

Using the portable vacuum cleaner.



Flock processing by Swedo Finishing Co. New York City



"Well I'll be Hanged"
...said the Pipe!

NOVEL DISPLAY BRACKET PUTS FLOCK TO GOOD USE

Tiny metal tongs cushioned with colorful sprayed-on Flock—and tack-affixed to display boards, serve to hold racked pipes in place . . . protect stems from being scratched. Flock spraying as indicated in top picture is applied to hundreds of brackets at a time—inexpensively.

Claremont Flock is uniform, responds perfectly to adhesive preparation and forms a deep-pile foundation that won't fuzz, separate or rub-off! Available in neutral shades and 18 brilliant colors. Write for details.

The Country's Largest Manufacturer of FLOCK

CLAREMONT WASTE MFG. CO.
CLAREMONT, NEW HAMPSHIRE

mum suction. The cleaner is supplied with 20-ft. of special heavy-duty cable connected to the machine by a patented strain relief. It operates from any convenient electric light outlet and is approved by Underwriters' Laboratories.

This cleaner is manufactured by Breuer Electric Mfg. Co., 5100 Ravenswood Ave., Chicago 40, Ill.

Rail Finish Resists Acid Fumes and Moisture

A new type corrosion-resisting track rail finish and primer have been developed by the Rinshed-Mason Co., industrial finishes manufacturer at 5935-71 Milford Ave., Detroit 10, Mich.

This finish is said to successfully resist acid fumes and moisture in tunnels; is claimed to be sufficiently flexible for rail usage and to retain its flexibility in spite of severe temperature variations in the weather. It is reported to possess very substantial resistance to abrasion. Adhesive qualities are said to be excellent.

Although specifically formulated to protect rails from the corrosive conditions present in many tunnels, its use will probably be extended to rails in other locations where corrosion problems exist, such as in some train sheds; on tracks running close to salt water; at grade crossings, which often tend to trap water against the rails; on lines carrying heavy refrigerator car traffic, where brine drippings are continuous, etc. Beyond its use on rails, other anti-corrosive and rust preventative applications are anticipated.

Ease of application is said to be one of its primary assets, for both primer and finish can be either brushed or sprayed on, or may be thinned for dipping if necessary.

The product is being introduced under the company's trade name, R-M, and carries the identification number X-8352 for the finish coat and X-8351 for the primer. Since August 16th, 1948, the Rinshed-Mason Company has been subjecting the material to continuous salt-spray tests, humidity and water soak tests, yet no breakdown has developed. At the same time, constant exposure tests in both Michigan and Florida have further emphasized its general durability.

Behlen's Metal Polish

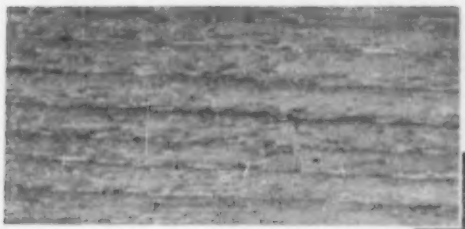
An improved metal polish that dissolves oxides, tarnish and corrosion marks, and which produces a brilliant luster on all metals is announced by H. Behlen & Bros., Inc., 10 Christopher St., New York 14, N.Y.

Chemical-Resisting General Maintenance Paint

A new general maintenance paint with remarkable chemical resistance has recently been placed on the market by the Organic Coatings Division of United Chromium, Inc., 51 E. 42nd St., New York 17, N.Y. The new paint, which is known as Ucilon 1701, is based on chlorinated rubber.

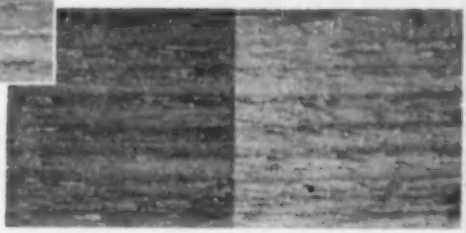
Ucilon 1701 is of real advantage in contact with acid and alkali fumes, moisture, vapors, grease and oils. For this reason Ucilon 1701 is recommended as a coating for floors, walls, ceilings, exteriors of storage tanks, structural steel and exteriors of cer-

There's a difference in Water White Lacquers . . .



Schaefer's Crystal Clear Water White Lacquer did not discolor when exposed to light.

Ordinary water white lacquers fade upon exposure to light.



Yes,

FOR COLOR RETENTION
ON LIGHT FINISHES . . . IT IS

CRYSTAL CLEAR WATER WHITE LACQUER

It's a new, time tested material for preserving the original color of those beautiful grays, off whites, lime, pearl, ermine and all pale, bleached and decorative effects so popular on furniture of today.

THE SCHAEFER VARNISH COMPANY

Incorporated

15th and Magnolia — Louisville 10, Kentucky

tain process equipment and machinery in industrial atmospheres. It is available in any color. Field reports on the coating indicate that its chemical resistance makes it exceptionally durable.

Ucilon 1701 is recommended for use on metals, wood, brick and concrete. It can be applied over old paint or other surfaces without priming and without sandblasting or other surface treatments. Loose rust and scale, however, should be removed. One or two coats is all that is required.

"Nun Lint" Polishing, Wiping Cloths

Rittenbaum Brothers, Inc., 701 Houston St., N.E., Atlanta, Ga., announces production of a lint-free wiping cloth. These cloths are suitable for practically any polishing, wiping or dusting purposes. They leave no lint, and they are economical, since they can be washed by merely soaking them in sudsy water, squeezing, and hanging them up for quick drying. They can be used again and again.

This cloth is different from the ordinary cloth, in that it is a non-woven fabric and, instead of being made from synthetic fibers, it is made only from cotton, bound by plastic.

Foam Rubber Stool Cushions

Durable Rubber Products Co., 162 No. Clinton St., Chicago 6, Ill., recently introduced a factory stool cushion to relieve fatigue and give comfort while sitting. This new cushion is especially designed for factory stools and is filled with foam rubber, the new comfort material used in all modern seating equipment. Foam rubber retains its shape and will not mat down and become lumpy. It's the modern cushioning that gives a life time of sitting comfort.

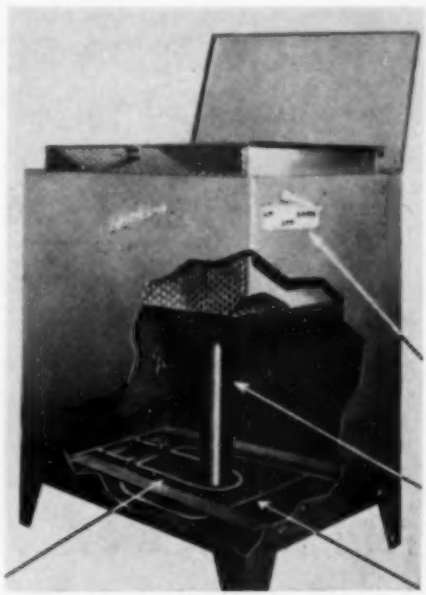
"Dip-O-Matic" Dip Tank for Cleaning Metal Parts

A new, completely automatic dip tank for fast, thorough and economical cleaning of metal parts is announced by the Hopkins Equipment Co., 48 Maple Ave., Hatfield, Penna.

The "Dip-O-Matic" eliminates all manual labor in its operation. A 3-way finger-tip control air valve does the work, automatically lowering and raising a specially designed basket into the solution.

Metal cleaning action is twofold. Old fashioned soaking action helps loosen dirt and grease. New agitated-solution action actively washes parts and releases stubborn dirt and grease that will not soak free.

Steam heat maintains the cleaning solvent at proper temperature if and when heating is desirable. Automatic temperature controls are optional. Floor space occupied is only 2x3-ft.



No motor, no pump, no gears.

BREAKING RECORDS
FOR
SPEED FINISH
AIR DRY SYNTHETIC ENAMEL

VELVA-TŌN

FASTUFF

INCREASE PRODUCTION with VELVA-TON FASTUFF, the new synthetic with lacquer speed. May be handled in only 15 minutes; packed in 2 hours—eliminating your floor space problems.

Produces a smooth, high gloss finish that resists the effects of heat and humidity.

Help Your Production!

The skilled research facilities of UNITED are at your service. Let us solve that tough finishing problem with a custom-compounded formula and a generous working sample.

UNITED
LACQUER MFG. CORP.
LINDEN, N. J. EVERETT, MASS.

Synthetic Baking Enamel in Gloss White

A new white baking enamel, developed by Maas & Waldstein Co., manufacturer of lacquers and synthetic enamels, is called to the attention of manufacturers who use large quantities of this type of finish for their products.

This enamel is especially formulated for electric light reflectors, metal venetian blinds, kitchen cabinets, hospital furniture, household appliances, and many other types of products finished with white baking enamels. This synthetic enamel is named Codur Gloss White Baking Enamel KY-821.

This new synthetic enamel combines unusually good mileage, excellent hiding properties, remarkable shock resistance and improved flexibility. It can be used in most baking schedules.

New Di-Phase Cleaner

Chemclean Products Corp., 64 Sixth Ave., New York, N.Y., announces the development of Chemclean No. 133, a new "di-phase" cleaner, unique in its action for pre-cleaning all metals without attack. This material removes buffing and drawing compounds, oils, greases, etc.; it is safe to work with, simple and inexpensive to use; it eliminates all hand operations.

To make up he bath, pour one volume of Di-Phase No. 133 on three volumes water (the No. 133 floats on top) and the tank is ready to work.

Objects can be in either phase, No. 133 or water. The parts are allowed to remain two to five minutes in the solution, removed, and without rinsing, they are put through either a mild alkali soak cleaner or directly into an electro-cleaner. The result is perfect cleaning.

The di-phase cleaner can be used in conjunction with a vapor degreaser advantageously, but in some cases, users have eliminated vapor degreasing entirely.

Experience has also shown that work put through No. 133 without further processing, will resist rust for some time.

New Rust Preventive Announced

The International Rustproof Corp., 12507 Plover Ave., Cleveland, Ohio, has just placed on the market a rust preventive for use on aluminum, chrome, ferrous, or non-ferrous metals. The product, known as Rustarest No. 30, provides a coating over plated parts as well as bare metal and, although hard and tough, it is pliable enough to take bending or curving.

The manufacturer states that it is a clear, transparent coating that dries quickly without need of baking. When Rustarest is used as a primer, it prevents paint from chipping off, but the actual Rustarest coating will not chip or crack under any normal fabricating application.

The product expands and contracts with the metal, regardless of temperature extremes, intense vibration, or abnormal flexing.

Tuf-On Chlo-Dur Coatings for Concrete and Metal

"Chlo-Dur" is the name appropriately applied to the latest series of Tuf-On coatings formulated for use on concrete and metal. Based on chlorinated rubber, Chlo-Dur finishes have the chemical inertness of the base material. The rigorous requirements of durable pool finishes are easily met by Chlo-Dur enamels, especially formulated to provide moisture and alkali resistance, and to withstand water, pool chemicals, and weather conditions. They have excellent adhesion to concrete surfaces,

"SAVED ITS FULL COST IN 80 DAYS"

for Northrup, King & Co., Minneapolis

"WE'VE used two 5-gal. Paintmasters for over a year. We spray synthetic enamel on 5,000 pieces of seed display racks daily. Paintmaster is excellent for this job. It is easy to use, keeps the enamel thoroughly mixed to give us true and uniform color, and is a real labor saver. In fact . . . we recovered our original investment of about $160 for our first Paintmaster in approximately 80 days."

M. H. HEINECKE, Supt.
NORTHRUP, KING & CO.

AMAZING? Not at all, where the Graco PAINTMASTER is concerned. In fact, the above story is *typical* of savings reported from many industrial plants with this revolutionary new spray painting system!

PAINTMASTER uses a pump—not a pressure tank—to deliver paint to the spray head. Pumps direct from drum or pail making transferring unnecessary. Operating at low pressure, it *saves gallons of paint* usually wasted as "overspray". And man-hour savings are considerable.

The 5-gal. model, caster-mounted for easy portability . . . fits right over pail. 55-gal. model fits all standard open head drums . . . no transfer to pressure tanks or other mixing vessels is necessary.

Write today for literature.

GRAY COMPANY, INC.
2 Graco Square
MINNEAPOLIS 13, MINNESOTA

GRACO

Paintmaster

without scaling, flaking, or blistering. Available in beautiful colors such as aqua, pale green, light blue, or aluminum, Chlo-Dur pool coatings easily withstand repeated scrubbings and washings.

This material is a product of Brooklyn Varnish Mfg. Co., 50 Jay St., Brooklyn 1, N.Y.

"Glov-Cote" Protective Hand Cream

A protective hand and arm cream for shop use, designed to protect skin against paints, printing ink, lacquers, grease, grime and oil, is announced by the Chase Chemical Co., 2901 Dover Ave., Cleveland 9, Ohio. The new hand cream called "Glov-Cote" has received severe tests in manufacturing, printing, and automotive service industries. Results show that it guards the skin pores against the irritating causes of dermatitis.

"Glov-Cote" acts like a glove over the hands and arms, forming a protective film that washes off easily even with cold water. As it dissolves, the protective coating carries with it the paint, grease, ink or grime that gathers during normal working operations.

"Rock-A-Drum" Vertical Truck

The problem of easily and safely positioning and moving heavy drum loads of paints, lacquers, chemicals, and all types of liquids and semi-liquids into the most convenient place for side dispensing of contents into smaller containers is solved by the Morse Vertical "Rock-A-Drum" Truck.

Raising the heaviest drum load 15-in. above the floor for dispensing contents from the side opening is child's play for one man and is accomplished with perfect ease and safety in a few minutes. Only three simple, speedy operations are involved.

One chime of the drum is engaged with the safety catch on nosepiece of the "Rock-A-Drum" Truck and the other chime is then securely locked to the truck platform by means of a turn screw. Operator then simply rocks the drum and truck as one unit to reverse vertical position where it is ready to roll on 3-in. wheels to any location for dispensing the drum contents.

Other interesting features are described in Bulletin 949 which can be obtained from Morse Mfg. Co., Inc., 122 Dickerson St., Syracuse 2, N. Y.

New Silk Screen Book, $4.00

The second edition of "The Silk Screen Printing Process" by J. I. Biegeleisen and E. J. Busenbark is now ready. It contains 225 pages 6x9-in. and 90 illustrations.

This new book covers everything that is worth while to have in book form about the silk screen printing process. It covers in detail all of the equipment, printing apparatus, tools, etc., and the paints and materials that become the finished product; tells how to select them for various purposes and how to handle them for best results.

Information is given about the reproduction of printing and art work by this process on various surfaces such as paper, cardboard, cloth, felt, wood, metal and composition materials. Also, the making of drawings and stencils, finishing work, estimating costs, shop management and recent developments.

This new book is attractively and durably bound between stiff cloth covers of dark blue and is lettered in gold. The book sells for $4.00 and can be obtained from INDUSTRIAL FINISHING, 1142 N. Meridian St., Indianapolis 4, Ind.

Two Mutually Owned Paint Firms Become Separate Companies

The Nankee Aluminum Paint Co., Inc. of Brooklyn, N.Y., and the Jamaica Paint Co., Inc., of Jamaica, L.I., formerly mutually owned corporations, have been resolved into two distinct and separately owned and operated corporations, according to an announcement made recently by Charles A. Lininger, President of the Nankee Aluminum Paint Co., Inc.

Mr. Lininger said that the separation resulted from the expansion of manufacturing and marketing activities of Nankee products and announces that Nankee has moved its main office to 43 South First St., Brooklyn, N.Y.

TIME OFF FOR SCRATCHING?

a scratching worker

IS NOT

an efficient worker

Tarbonis
is available in
1-lb. and 6-lb. jars.

Skin irritations are frequently the cause of slow-downs and absenteeism among plant workers. TARBONIS has a long record in hundreds of plants for overcoming and guarding against the recurrence of skin irritations.

COMMON SKIN IRRITANTS

- Cutting Oils
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- Plastic Compounds
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★ Whether hand cut or photographic silk screen plates are best suited to your type of work, you'll find NAZ-DAR a reliable and economical source of supply.

SILK SCREEN is the MODERN method of applying decorative designs, lettering and trade marks, because it provides absolute UNIFORMITY, SHARP DETAIL, SPEED and LOW COST. You can apply on any surface.

We maintain a complete service for the trade and can supply you with any type of Silk Screen Plate needed, as well as Silk Screen Inks, Lacquers, Squeegees, Decalcomania Paper, Frames, Cutters and accessories.

All production men should investigate the application of Silk Screen Stencils to their production problems.

★ *Write Department IF 11 for information or copy of catalog No. 25.*

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A $50,000.00 SAVING

in costs offsets a drop in business of $1,000,000.00 based on a 5 per cent net profit.*

You *CAN* lower costs and improve the quality of your finish with the economical DeBurgh Finishing System.

***Annual savings of $50,000.00**

to $75,000.00 are not unusual for even medium sized furniture factories equipped with DeBurgh Finishing Systems.

DeBurgh Conveyor Systems

are designed and tailored to fit production of the smallest to the largest plants.

Investigate!

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For Assembly, Finishing and Upholstering

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Distinctive finishes — skillfully prepared in our Creative Studio — have attracting qualities, too! They are eye-catching, sales-motivating coatings which subtly enhance the fine lines and design of any product.

Our capable, highly-trained artists — men who realize the importance of individuality—have the know-how and experience so necessary in developing such finishes. They are never satisfied with "just about perfect" . . . they keep working on an assignment until they have conceived a finish that is destined to do a real sales-winning job.

Avail yourself of their creative abilities. Send a sample of your product to be finished at no cost or obligation.

No Tampering with Quality

ROCKFORD VARNISH *Company*
ROCKFORD ILLINOIS

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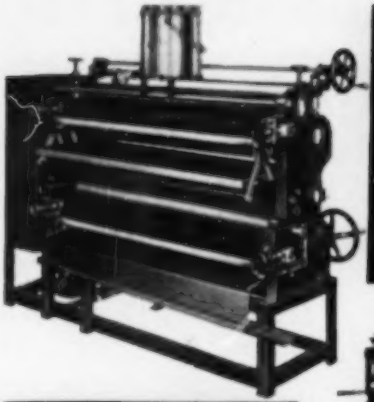

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coating costs
WITH GASWAY ROLLACOAT FINISHERS

GASWAY CORPORATION

Faster and more economical finishing of the highest quality is possible with Gasway Rollacoat machines that have proven their worth in varied fields for more than a dozen years.

Pioneers in the design and manufacture of Industrial Rollacoaters, Gasway produces units up to 49" wide. Present your painting problems to our engineering department.

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For fine decorative finishes use —

MEARLMAID PEARL ESSENCE

THE MEARL CORPORATION

153 WAVERLY PLACE **NEW YORK, N. Y.**

"World's Largest Producer of Pearl Essence"

Too Many "At Work" Accidents

The staggering cost of U. S. occupational accidents is illustrated in a set of figures relating to New Jersey, announced by Thomas Roy Jones, president of the New Jersey Safety Council and internationally known industrialist.

Although New Jersey happens to be one of our safer states, last year 175 employes were killed in occupational accidents, and approximately 42,500 were injured to a degree where compensation was paid, with 27,000 of these people permanently injured in one way or another.

As for the cost in money, $20,000,000 was paid in workmen's compensation. And it has been estimated the hidden costs in industrial accidents, such as damages to machinery, loss of time and like costs, are approximately four times the amount of the direct costs. Thus, in this one state, the hidden costs can be put at about $80,000,000. And not all the accidents that occur are covered by compensation.

Miericke Represents Michigan Oven in Chicago District

Mr. Kurt A. Miericke, 830 Elmwood Ave., Evanston, Ill., has been appointed Chicago district representative for the Michigan Oven Co., 4544 Grand River Ave., Detroit 8, Mich. Mr. Miericke will have charge of the sale of industrial ovens throughout the district comprising northwestern Indiana, northern Illinois, Wisconsin and Iowa.

Mr. Miericke is a graduate metalurgical engineer from Northwestern University, and has had post-graduate work in electrical engineering. He is well known to the industries in the district, having sold industrial X-ray equipment for 8½ years until 1944 when he joined the U. S. Gypsum Co as development engineer, and where he has been until recently.

Plant Maintenance Show in Cleveland, Ohio

A group of 21 experts will lead the most exhaustive discussion of plant maintenance problems ever undertaken at a conference to be held concurrently with the Plant Maintenance Show, at the Auditorium, Cleveland, O., Jan. 16-19, inclusive.

Topics for the four-day conference include maintenance management principles; maintenance cost; light equipment; upkeep of motors, controls, distribution equipment, floors, walls and roofs; use of electrical instruments in maintenance; relationship of color and light to production; sanitation; lubrication; use of service equipment, and personnel safety. The Cleveland Engineering Society will sponsor a dinner for guests.

SAF-TE STANDS ALONE!

Removes any finish
Eliminates risk of fire!

Industrial firms find SAF-TE Non-Burning Remover in a class by itself. This powerful remover does a first-class removing job on any type of finish—*and it affords complete protection against fire!* Designed specifically for use in places where fire prevention is all-important, SAF-TE simply will not burn. Saves time and work, too—eliminates the need for after-washing the surface with alcohol or sub-turps.

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or mail coupon for information on any type of removing problem.

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We are interested in stripping finish
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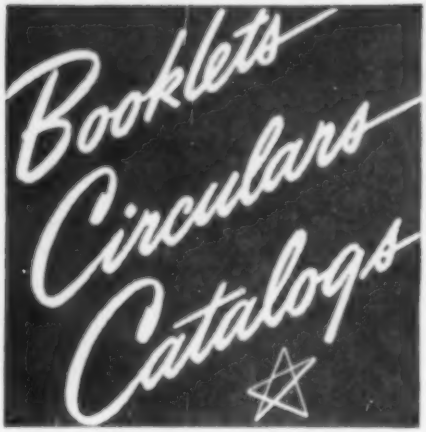

New Bulletin on "Tumblast"

A new bulletin on the redesigned 48x72-in. Wheelabrator Tumblast — an airless abrasive blast cleaning machine—is now available from American Wheelabrator and Equipment Corp., 555 S. Byrkit St., Mishawaka, Ind.

Pumps for Corrosive Liquids

A 4-page 2-color Bulletin 816 describes and illustrates the new design corrosion-resisting pumps made and sold by The Duriron Co., Inc., Dayton 1, Ohio, manufacturer of valves, nozzles, fittings, heaters, coolers, etc.

Roller Coating Book Free

A new 12-page book, bound between blue covers, contains information and pictures pertaining specifically to roller coating methods and machines. Machines are shown that have rollers as long as 48-in. to take panels up to 47-in. wide. Intermediate and small size machines range down to those for coating venetian blind slats. The operation of both one-side and two-side coating machines is described; speeds range from 40 to 100-ft. per minute. This illustrated book was especially prepared for the trade by Gasway Corp., 6463 Ravenswood Ave., Chicago 26, Ill.

New Engineering and Production Equipment Booklet

The Continental Industrial Engineers, Inc., Consultants, Engineers, and Manufacturers of completely equipped plants, production lines, special machines and heat-processing equipment, has issued a new 12-page booklet describing in detail the broad scope of their services to industry. Included are many illustrations with detail descriptions of a wide variety of production lines and automatic processing equipment covering practically every industry.

A copy of this booklet, No. 127, is available from Continental Industrial Engineers, Inc., 176 W. Adams St., Chicago 3.

New Catalog of Portable Sander And Rubbing Machines

A new 20 page catalog 8½x11-in. shows various views including inside pictures and drawings of the National air-driven portable sanding and rubbing machines. Detailed illustrations show all parts and accessories, how to change abrasive paper and how to operate the machine in actual production in various industries. Models 100, 300, 400 and 500 are illustrated and explained. A free copy can be obtained by writing National Air Sander, Inc., Rockford, Ill.

M & E Issues New Catalog

A new 62-page catalog presenting their complete line of industrial paint spraying equipment is being mailed free upon request by the M & E Mfg. Co., Indianapolis, Ind.

The new equipment reference manual is the most elaborate and generously illustrated catalog prepared by M & E in its 22 years of experience in designing and manufacturing spray guns, overspray exhaust booths and complete paint spray finishing systems.

The applications of all of M & E's industrial painting products are explained in detail in the catalog. A comprehensive price list section, including a break-down of available accessories, enables the buyer to order with assurance that he will get the exact parts he needs for any job.

Five Metal Cleaners Explained in Five New Bulletins

Enthone, Inc., Dept. IF, 442 Elm St., New Haven, Conn., announces five bulletins of different color, each of which describes a newly developed or improved material for celaning certain metals in preparation for finishing or electroplating.

Zinc Cleaner 20 is an anodic electrocleaner for degreasing zinc base die castings prior to plating with copper or nickel.

Aluminum Cleaner "E" is an etching type alkaline cleaner for aluminum. The cleaner is used for producing a fine etched finish on aluminum, as well as to prepare it for painting or electroplating.

Aluminum Cleaner "NE" is a non-etching type aluminum cleaner to degrease

A Quick, Smooth, Uniform coating—assured by

BARRETT GALVANIZING AND HOT TINNING CENTRIFUGALS

BARRETT CENTRIFUGAL GALVANIZER is driven with high torque head and has an equalized disc brake for quick stop.

With the Barrett Whizo Galvanizer, excess metal is quickly removed from small parts after dipping in molten metal, in fact, much faster and more uniform production is assured. Parts will also pass the most rigid inspection for quality.

The method of handling is simple and easy. Work to be coated is placed in a round basket and submerged in molten metal. When thoroughly heated, the basket is placed in the Barrett Centrifugal to be immediately accelerated to high speed, the excess metal being thrown off before it can cool.

A quick pick up and stop (from 2 to 3 seconds each) assures maximum production with an even thickness of coating.

Machines furnished with or without heated surrounding drum, in capacities from 40 to 240 loads per hour, handling from 5 to 100 lb. loads. When used for tinning threaded work, rethreading has been found to be unnecessary.

Barrett Centrifugals are used extensively, combine speed with convenience of operation and the utmost in safety. They are highly developed to meet all reasonable requirements, have self-contained motor drive and occupy a minimum of floor space.

Send at once for full details of Barrett Centrifugal Galvanizer

THE LEON J. BARRETT COMPANY

Designers and Builders of Centrifugal Machinery

1703 GRAFTON ROAD WORCESTER 1, MASS.

Mac's

NU FASHION FILLER STAINS

(The original manufacturers of Filler Stains)

Speed production. Stain and fill in one operation.

Eliminate several costly operations and reduce drying time by 1½ to 2½ days.

Fill equal to the paste fillers with the minimum of shrinkage. Write for a production test sample and make your own experiments. (Specify color required.)

Descriptive Folder Sent on Request.

The Lawrence-McFadden Co.

Headquarters for Fine Finishes Since 1875

7430 STATE ROAD PHILADELPHIA 36, PA.

To Small Users of Finish Materials

We specialize in serving the smaller users with the very latest type of industrial Materials in small quantities; NGR stains, pigment stains, fillers, sealers, reducers, retarders, lacquers, varnishes. A half-pint or five gallons will be mailed out to you, the day your order arrives. Write for catalog.

Gaston Finishes, Bloomington, Ind.

TOMORROW'S Products Tested TODAY

A service to aid industry in producing longer-lasting and better-looking products. Quick predetermination of durability and permanency by actual exposure test in South Florida. Write us today for full information.

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available for immediate delivery.
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ADDS
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American Graining Plates are photographic reproductions of fine woods.

AMERICAN RICHWOOD PRODUCTS CO.
Graining Plate Division
104 E. Mason St., Milwaukee 2, Wis.

aluminum without attack prior to organic finish or electroplating.

Cleaner 100 is an alkaline, anodic electrocleaner for steel.

Enthone Brass Cleaner is an alkaline cleaner for degreasing non-ferrous metals including copper, brass, tin alloys and lead alloys.

A copy of one or more of these bulletins will be sent free on request.

Electric Heater Catalog

An almost endless variety of standard electric heating units, many of them entirely new, are listed in the new Chromalox Catalog of Industrial Electric Heaters just published.

Four basic Chromalox units—strips, rings, tubulars, and cartridges—with wide variations in wattage, voltage and sheath material, are listed, as well as easy selection and application data.

For a copy of Chromalox Industrial Catalog 50, write Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh 8, Penna. LETTERS

Metal Cleaning Folder Free

The Metal Industries Department of The Diversey Corporation, 53 W. Jackson Boulevard, Chicago 4, Ill., has issued a novel 4-page file-size folder on Diversey No. 909, heavy-duty soak-tank metal cleaner. The folder features economy of use—"savings up to 50%, on the average, of present cleaning costs."

From a technical standpoint, the folder is particularly complete. It enumerates features of the cleaner, applications and directions for its use. The folder will serve as a handy reference to metal working technicians and engineers concerned with particular problems of metal cleaning covered.

Creating Beauty Through Better Finishes for Industry

The above title is on a colorful brochure of 12 pages 10x9½-in. bound between glossy black covers spotted with red, yellow, blue and white. Many illustrations are inside the brochure which features particularly four of O'Neil Duro Co.'s outstanding products — Syn-For baking enamel; Vin-O-Cel lacquers for fine furniture and cabinet work; Duro-Cote air-drying enamels for wood and metal, and Novelite patterned finishes by which finishers can produce hammered and spattered effects, mother-of-pearl, marble, rare wood graining, etc.

The merits of each finish are emphasized by attractive illustrations. Copies of this interesting and colorful brochure can be obtained free from O'Neil Duro Co., 2156 So. 14th St., Milwaukee 7, Wisc.

Metal Primers and Primer Surfacers Featured

A new folder describing the line of Zapon primers and primer surfacers has been issued by the Industrial Finishes Department of the Atlas Powder Co., Stamford, Conn., and North Chicago, Ill. Properties of the various materials are listed in chart form with recommendations given for particular types of surfaces and end uses. The question which primer, as well as the question which primer surfacer, are both answered in a clear, helpful manner for anyone using industrial finishes. Points on adhesion, corrosion and appearance are explained as being instrumental factors in the final selection of a primer, or primer surfacer.

Phosphate Coatings; Metal Cleaning; Spray Booth Maintenance

A set of convenient reference file folders of interest to those engaged in metal cleaning and other users of industrial chemicals is announced by Klem Chemicals, Inc., Dearborn, Michigan. Attractively printed in two colors on durable stock, the folders facilitate filing of technical information under four general headings, Paint Removal, Phosphate Coatings, Metal Cleaning and Spray Booth Maintenance.

The cover of each folder provides brief descriptions of the complete line of various compounds and chemicals available from the company, along with the free technical advisory service furnished by Klem Chemicals service engineers. By writing Klem Chemicals, Inc., 14373 Lanson, Dearborn, Michigan, a folder covering the field in which you are interested may be obtained, or all four are available for those desiring a complete set.

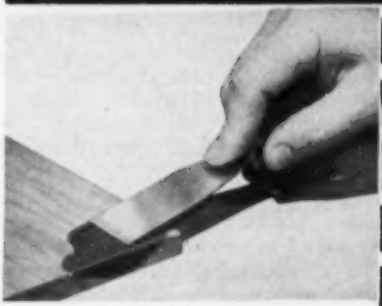
New Rust Preventive Booklet

In connection with the revision of its rust preventive line-up for industrial purposes, E. F. Houghton & Co., manufacturers of protective products has published a new booklet on rust preventives.

Entitled "A New All-Star Line-Up of Rust Preventives," this 8-page booklet thoroughly describes and lists the many uses for each of the eleven Rust Veto products developed by Houghton and proved through years of use in industrial applications. A full page chart outlines the physical properties of each Rust Veto and also lists such information as thickness and type of film, amount of coverage obtained in use, and other pertinent data.

Photographic evidence is shown of pieces subjected to severe testing. Various types of testing equipment are also illustrated. For a free copy of this descriptive booklet write E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Penna.

COMPARE
DURATITE
WITH ANY OTHER FILLER



See why it's better!

See how much faster and easier Duratite fills holes, cracks, dents, gouges *in just one application.* Dries with only 1% shrinkage.

Duratite's *fine textured fill stays in!* Can be cut, sawed, sanded to a fine, smooth surface . . . waterproof, weatherproof, takes a high finish, and all commonly used stains.

You'll prefer Duratite! Complete line of 7 wood colors in 5 convenient size packages.

SEND FOR FREE SAMPLE!

WEBB PRODUCTS COMPANY
224 South G Street, San Bernardino, California

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Address_____

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Jobber's Name_____

FOR LARGE CAVITIES FOR SMALL CAVITIES

Industrial FINISHING Editorial

Making Conditions Better For Better Production

There is an old saying to the effect that you only get out of something in proportion to what you put into it. In many cases management has proved the truth of this statement. Evidence of this is found where management has instituted outstanding safety measures for the protection of employees, where changes in equipment have aided in promoting comfort, and where clean washrooms and showers, recreation rooms and lunchrooms or cafeteria have been installed. One company has even assigned one telephone for employees use only—and, strange to say, the privilege has not been abused.

Workers really appreciate management's efforts to make conditions safe and comfortable. They show it by less absenteeism, greater application to their work, better quality workmanship and more production.

Refrigerator Finishes; Synthetic Resins

In the last 15 years, the design, cost, and performance of products of American manufacturers have been increasingly influenced by decorative and protective finishes. This increased importance has been due mainly to the advent of many new and improved finishes which, in turn, are the result of the development and proper usage of their chief ingredients — synthetic resins.

Synthetic resin finishes are present in or on practically every product purchased by the U. S. consumer. As paints, varnishes, or lacquers, they decorate and/or protect practically every object he uses, either at home or in business. More than 30 different types of synthetic resins are in general use in finishes, each carefully manufactured to meet the exact specifications demaned by leading paint concerns according to the paint product's field of application. The scientific production of resins is matched by their prescription-like compounding into coatings. As a result, there is more beauty, protection, and service for the products utilizing synthetic resin finishes.

If the consumer ever stops to consider the improvement in appearance and durability of his refrigerator, he may recall coming in contact with these improved characteristics of non-yellowing, hardness, abrasion and chemical resistance, and smoothness in another form—plastics. For the same general types of resins from which are molded radio cabinets, buttons, bottle caps, and other common household items are also used in refrigerator, stove, washing machine, and other finishes.

For the more technical readers, the enamels on today's refrigerators are a combination (ratios depends on the formulator of the finish) of non-oxidizing alkyd resin and etherified urea resin. The alkyd plasticizes the cured film of the finish, provides adhesion to the smooth metal, and resists breakdown of the film upon continued exposure. Urea imparts advantages to the final finishes by preventing dis-

(Continued on page 121)

You Can Have a

PEARLESCENT

Finish at Low Cost!!!

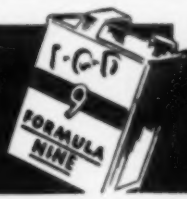
CHEM-SCALE requires relatively small quantities to produce lustrous and pearlescent effects. It may be readily incorporated into cellulose nitrate plastics and lacquers; also other plastics and coating materials.

CHEM-SCALE, a brilliant PEARLESCENT white pigment for decorative finishes, is supplied in concentrated form (12½%) dispersed (1) in nitrocellulose dissolved in butyl acetate and (2) in cellulose acetate dissolved in methyl "cellosolve" acetate; also in paste form consisting of 25% CHEM-SCALE incorporated in various solvents and diluents to meet customer specifications. CHEM-SCALE is shipped in one gallon glass containers or five gallon metal pails lined with polyethylene.

Write for sample and submit specifications and requirements.

SHUMAN CHEMICAL PRODUCTS, INC.

58 JOHN HAY AVE. **KEARNY, N. J.**



I. C. D. FORMULA NINE

NON-INFLAMMABLE « *wax free* REMOVER »

for paint, varnish, lacquer, baked enamel, adhesives

EASY TO APPLY—NO AFTER CLEANING

I. C. D. FORMULA 9 is the standard of safety and quality . . can be sprayed or brushed . . doesn't raise grain nor discolor . . quickly removes all kinds of finishes and coatings from any surface or material . . costs less to use . . saves time, labor and material.

BRUSH CLEANER I. C. D. — non-inflammable brush cleaner works fast . . does not injure nor loosen the bristles. Easy to use . . leaves the bristles clean as a whistle. Order a gallon can and convince yourself.

ORDER TRIAL GALLON AT DRUM PRICE

INDUSTRIAL CHEMICAL DEVELOPMENT CORP.

515 FLUSHING AVE. BROOKLYN 5, N. Y.

Be Fresh . . . Stay Fresh!

on

PAINT SPRAY JOBS

wear a DUPOR Chemical Cartridge Respirator No. 10

Ideal for paint, lacquer, enamel vapors, fumes, gases, etc. Face mask gives air-tight fit, controlled breathing, panorama vision with no blind spots. Cartridges are of colored plastic for easy identification! When ordering, specify the WHITE for Code A; BLACK, Code B; YELLOW, Code AB.

Sample sent
$4.50 pp

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South Bend, Ind.

COVER'S
GAS-TIGHT
FOG-PROOF
GOGGLES
$1.65

BOOKS On Finishing Available

"MODERN ORGANIC FINISHES—Their Application to Industrial Products" (452 pages) New	$8.50
"CHEMICAL FORMULARY" (Vol. VIII)	7.00
"FINISHING METAL PRODUCTS"—2nd ed. (352 pages)	4.00
"PRACTICAL FURNITURE FINISHING" (112 pages)	1.25
"FURNITURE FINISHING" (543 pages)	4.00
"SPRAY PAINTING"—Industrial and Commercial (169 pages)	2.00
"THE MIXING OF COLORS AND PAINTS" (292 Pages)	2.50
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"GRAINING"—Ancient and Modern (224 Pages)	4.00
"THE SILK SCREEN PRINTING PROCESS" (225 pages)	4.00
"INDUSTRIAL APPLICATIONS OF INFRA-RED" (200 pages)	3.50

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coloration, shortening the curing time when the finish is applied, adding abrasion and mar-resistance, and providing resistance to moisture, weak alkalies, acids and oil, greases, alcohols, and other chemicals commonly found in the home. — *The Plaskon Magazine.*

Reasons for Rejects

Rejects! Everybody has them. Why, when, where and how did they become rejects? This information is needed before the first step can be taken in any effort to reduce the number of rejected pieces or products. One well known company found it expedient to find out.

This company made a periodic analysis of all rejects. Competent people were assigned to the job. Check-up periods were not held at pre-arranged stated intervals. Sometimes rejects were checked on several successive days, then at other times, a week or ten days would elapse before another check was made. The analysis which was plant wide was made at strategic points in the manufacturing process, and did not occur at exactly the same point each time. This gave management a cross-section of the reject problem.

This plan did not seek opportunities to place the blame for rejects on any department, group or individual. Cold facts were recorded and studied by management so that corrective or protective measures could be devised to remove or reduce causes for rejects.

Practically every individual plant has a different system, method or manufacturing procedure, therefore most of the reasons for rejects are different in each plant. Of one thing we may be sure. It is absolutely necessary to have definite and accurate knowledge as to why, when, where and how certain articles or products became rejects, before the problem can be solved.

PINHOLING PROBLEMS?
Use Liquafill Sizing.
For Information, Write
THE LIQUAFILL MFG. CO.
823 Richard St. Dayton 3, Ohio

FOR ALL FINE FINISHES
TAC-ALL
TACK RAGS
Packed bulk or individually.
Prices and samples on request.
GEO. W. RENNER CO.
2309 Lillie St., Ft. Wayne 5, Ind.

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AND RESEARCH . . .
one of many reasons for the
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NATIONAL
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FOR

FINISHING AND RUBBING ROOM SUPPLIES AND EQUIPMENT

Immediate Delivery

We specialize in SUNDSTRAND Sanding and Rubbing Machines

Wilkinson Equipment & Supply Co.
6958 S. Wentworth, Chicago 21, Illinois

PEARL ESSENCE

"Astralucine Brand" Produces a high luster on a variety of finishes

Write for your free copy of our informative Technical Bulletin "Pearl Essence Finishes" —what they are and how to use them.

Argenta Products Co.
EASTPORT, MAINE

RESTORE PAINT IN 2 MINUTES

PER GALLON WITH MIRACLE BLUE - BOY 5 GALLON PAINT REJUVENATOR

Paints, lacquers and enamel products can be restored to their original consistency without opening the can. Units available to handle from ¼ pint to 50 gallon drums. Immediate delivery.

Originators of paint rejuvenating equipment---sixteen years—thousands of satisfied users.

Write for folder & prices

MIRACLE PAINT REJUVENATOR CO.
127 E. 9th Street St. Paul 1, Minn.

Random Comment on the Industrial Scene

(Continued from page 8)

development. Both men came from Battelle Memorial Institute where they handled tin problems.

* * *

An Insoluble Plastic called "Fluorthone" has been discovered. This plastic cannot be dissolved by any known solvent at ordinary temperatures. It is unaffected by sulphuric, hydrochloric and nitric acids or caustic soda.

Thus far chemical equipment such as tubing, fittings, flasks, test tubes, beakers, etc., have been made of the new material. This material is one of the constructive outgrowths of the atom bomb.

* * *

Plastic Wrap. After dominating the plastic-wrap field for 25 years, cellophane is now getting some competition from polyethylene, a new plastic film introduced during the war. Since polyethylene has many of cellophane's desirable properties, and is in the same price range, it may eventually take a substantial share of the plastic film market, which this year is estimated at 260 million pounds.

Development of other films based on vinyl resins has created a host of new uses, such as plastic draperies, inflatable toys, and wearing apparel, and has pushed consumption of plastic film to a multi-million dollar business. All types of films (the term usually covers material five thousandths of an inch or less in thickness) now account for almost 15% by weight of the total output of the plastics industry. Film production, now estimated at 330 million pounds per year, is expected to reach 500 million by 1952.—*Industrial Bulletin.*

Automatic Lighting. Perhaps industry could take a lesson from the town of New Milford, Conn. The city fathers have installed an automatic system of street lighting designed and developed by the General Electric Co. Through the use of photo-electric eyes, lights are turned on automatically whenever natural light drops below one foot candle of illumination. The system operates during daylight hours as well as at night. For industrial use the minimum of light could be set at higher levels than those required for street lighting.

* * *

Protects Steel Beams in Fire. Beams and other industrial equipment made of steel can now be given a lightweight protective coating to prevent them from collapsing in the event of fire.

Although steel usually is regarded as fireproof by the general public, engineering tests have shown that it may crumple after only 15 minutes of exposure to an intensely hot blaze, if uncoated .

The Eagle-Picher Co. of Cincinnati announces that tests of its fireproofing cement have been completed by the Underwriters' Laboratories, Inc. The material was rated by the laboratories and listed by them for re-examination service. When applied in a layer only 1¾-in. thick, the cement will retard the effect of great heat for three hours.

Makers of the product point out that its general usage would mean that twisted masses of steel supports, distorted from their original positions by heat, no longer need be an inevitable, costly aftermath of factory fires.

The protective cement has only a fraction of the weight of most other materials used in the past for this type of fireproofing, and can be easily troweled on without the use of forms. The coating resists crumbling.

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How Peelable Coatings Are Used in Big Plant

A new 24-page book of illustrations showing a camera study of peelable protective plastic coatings in the fabrication of aluminum aircraft and the protection of spare aircraft parts is offered free by Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N.J. and 122 East 7th St., Los Angeles 14, Calif.

Quoting from the introduction:

"To a greater degree, perhaps, than any other aircraft manufacturer, Canadair, Ltd. of Montreal, Canada has pioneered the use of peelable, protective plastic coatings to safeguard aircraft skins during handling, fabrication, storage and assembly.

"Their forward-looking approach to quality control and cost-cutting through effective use of peelable plastic films has wide application wherever it is important to protect aluminum, stainless, clad, plated or pre-finished metals during fabrication, storage, assembly, testing and shipping.

"Through the courtesy of Canadair, Ltd., we are privileged to present this series of unretouched, candid-camera photographs showing their use of 'Liquid Envelope' to protect sheet aluminum."

Herman Hardesty Joins Star Chemical Co. of Chicago

Herman Hardesty, a finishing consultant of many years experience (several years with Magnavox Co.) joined the Star Chemical Co.'s organization in September and is now calling on the trade in Indiana and Michigan.

Mr. C. L. Woeltje of Star Chemical Co. states that the organization is now in position to offer Mr. Hardesty's knowledge to the trade in helping to solve finishing room problems, and the firm welcomes inquiries as to Mr. Hardesty's availability for such service.

Free School for Finishers

Finishine Laboratories, Inc., 627 Tallman St., Syracuse 4, N.Y. announces dates for two 3-day winter classes for practical finishers as follows: December 5, 6, and 7, 1949; January 9, 10 and 11, 1950.

According to Mr. Hagadorn, president of the company, hundreds of finishers and novices have received valued benefits from this free school for finishers. Write the company for registration blank and additional information.

Stierstorfer Appointed Chemist By Atlas Powder Co.

John A. Stierstorfer has been appointed Senior Synthetic Enamel Chemist at the Stamford (Conn.) branch of the Atlas

Powder Company's Industrial Finishes Department. Mr. Stierstorfer brings to Atlas a background of a dozen years in the development laboratories of eastern and midwestern finish and paint manufacturers. He completed his studies at Pratt Institute, Brooklyn, N.Y., and began his career with a paint manufacturer in that city.

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POSITION WANTED

In or near Indianapolis. Finishing Foreman experienced in all modern types of finishes and finishing methods, including electrostatic. Address IF-675, care Industrial Finishing.

POSITION WANTED

As finishing foreman in a shop that does baked work. Have over 20 years experience, several in Minneapolis. Have had good success in training men and also getting out work without difficulty. Address IF-676, care Industrial Finishing.

POSITION WANTED.

Furniture Finisher desires connection with reliable firm doing high grade case goods. Understands all phases of finish. Capable of training and supervision. Excellent color matcher, thoroughly familiar with production methods, over 25 years experience. Family man, presently employed. Address IF-677, care Industrial Finishing.

FINISHER WANTED.

Experienced in all branches of furniture finishing. Capable of mixing colors and judging working properties of finishing materials. Excellent opportunity for middle-aged man to advance into the sales-service division of industrial manufacturing plant located in Winston-Salem, N. C. Write giving full particulars in first letter as to age, experience, references and salary expected. Address IF-686, care Industrial Finishing.

SALES POSITION WANTED.

Salesman, 24 years' successful selling with two firms; sales annually in hundreds of thousands; have practical knowledge of paint and lacquer and do all my own demonstrating and handling of complaints; would also consider direction of field complaints or training young salesmen. Address IF-685, care Industrial Finishing.

FINISHING FOREMAN OR SUPERINTENDENT WANTED

By Television Cabinet Plant located 50 miles from Philadelphia. Permanent position with future for production man. Furnish complete history, including previous connections. BOX 110, Bethlehem, Penna.

INDUSTRIAL FINISHES CHEMIST

Wanted for midwestern plant of firm manufacturing complete line of lacquers and synthetics. Please send complete information concerning experience, education, etc., to IF-679, care Industrial Finishing. All replies confidential.

SERVICE MAN WANTED

Experienced Service Man to supervise and control for national paint manufacturer, three thousand gallon dipping tank and conveyor oven used for finishing metal stampings in Youngstown, Ohio, area. Give age, past experience and salary required. Practical experience absolutely necessary. Address IF-681, care Industrial Finishing.

OVER 40 PAINT MANUFACTURERS

Subscribe to our service on a year-round basis. They need production men to manage their plant, to cook varnish, to formulate resins and lacquers, to match colors, to trouble shoot. They need salesmen to sell industrial finishes accounts in 26 cities throughout the country. There is opportunity for every man who contemplates a change. Write today for free copy of Paint People which lists by location some of the jobs our clients are eager to fill. No placement fee or obligation. All replies will be treated in confidence. U. S. PERSONNEL TRANSFER, Inc., Box 54, St. Albans, N. Y.

Are You the Right Man?

The right man is an experienced finishes salesman with established business. There are good territories open with a liberal drawing account and commission for a good producer.

Our products, principally lacquers and synthetics, have established sales acceptance in a highly competitive market. Are you the right man? Why not write ABLON FINISHES, Inc., 84 Wadell St., Newark 5, N. J.

INDUSTRIAL FINISHES CHEMIST.

Services required in eastern division of firm manufacturing all types of industrial finishes. Please send full particulars concerning qualifications to IF-680, care Industrial Finishing. Replies confidential.

POSITION VACANT.

Enamel Chemist Formulator. Growing centrally located industrial paint manufacturer desires an enamel chemist formulator. State educational background, experience and salary desired. Address IF-659, care Industrial Finishing.

CHIEF CHEMIST WANTED.

This position is open for a qualified individual who wishes to associate himself with a well established firm manufacturing a complete line of lacquer and synthetic finishing materials in the metropolitan New York area. Please send full particulars concerning experience and qualifications. All replies treated in strictest confidence. Address IF-678, care Industrial Finishing.

SALESMAN WANTED.

Industrial lacquers and synthetics. Must be experienced and have good following. Can guarantee excellent materials at competitive prices. Well organized laboratory and plant to back up our products. Car essential. Write in full detail. Address IF-644, care Industrial Finishing.

INDUSTRIAL FINISHES SALESMAN WANTED.

This 50-year old well-known company is broadening its field of operation and requires services of technically able paint sales engineers with or without established contacts in Chicago, Detroit, Pittsburgh, Milwaukee. This is a real opportunity. Write in confidence to IF-684, care Industrial Finishing.

SALEMAN WANTED.

Experienced Industrial Finishing Salesman for Eastern New York state, Connecticut and Western Massachusetts. Substantial amount of business already established in furniture and metal lines. All replies held in strict confidence. Our men know about this ad. Give full particulars as to age, past experience, education, etc. LILLY VARNISH CO., Gardner, Mass.

SALEMAN WANTED.

Top Industrial Finishes salesman for protected New York State territory. $6000 base salary plus commissions and expenses. Well established manufacturer with complete line. Write in detail. Replies held in strictest confidence. Address IF-682, care Industrial Finishing.

WANTED TO BUY.

Will Buy your dirty Thinners and Solvents. Send sample or letter giving approximate contents and solids. Address IF-683, care Industrial Finishing.

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8 drums Walnut Oil Stain, .55 gallon. 50 gallons in fives, Bright Red, Semi-Gloss Lacquer Enamel 1.15 gallon. Less than half original cost. All or part, FOB Mediden. Color samples on request. CHRISTIAN A. BAUR CO., 19 Carpenter Ave., Meriden, Conn.

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The Treasury Department acknowledges with appreciation the publication of this message by

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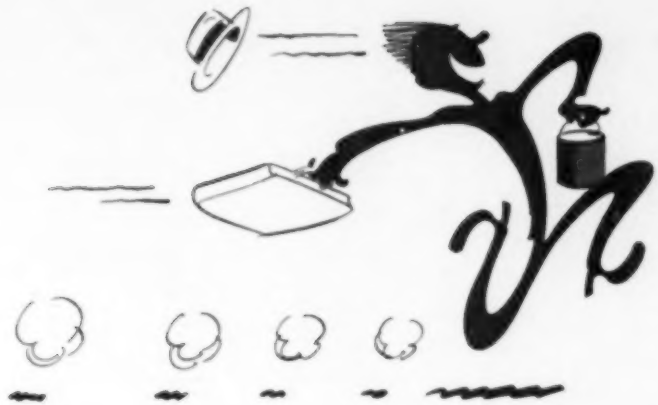

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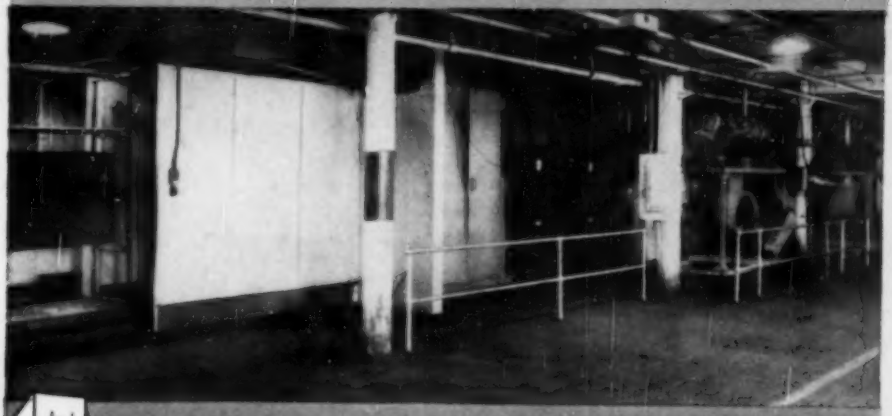

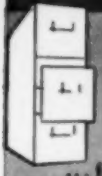

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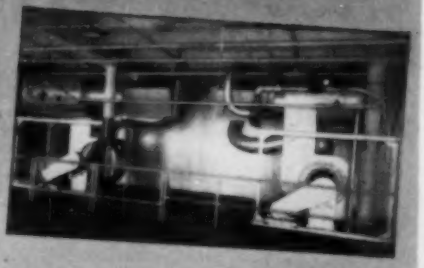

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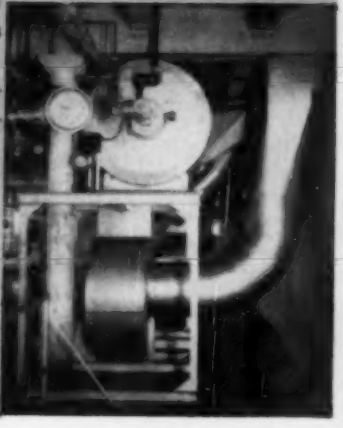
From mammoth conveyor ovens to the smallest of laboratory units, Kirk & Blum builds many types of industrial ovens for a multitude of uses. All incorporate controls to meet production and safety requirements. Write today for catalog, "Industrial Ovens." The Kirk & Blum Mfg. Co., 2831 Spring Grove Ave., Cincinnati 25, Ohio.



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